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2011

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**Mayors, Markets and Municipal Reform:
The Politics of Water Delivery in Mexico**

By Veronica Maria Sol Herrera

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in Political Science

in the

Graduate Division

of the

University of California, Berkeley

Committee in Charge:

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Professor David Collier

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Spring 2011

Mayors, Markets and Municipal Reform: The Politics of Water Delivery in Mexico

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by Veronica Maria Sol Herrera

Abstract

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Veronica Maria Sol Herrera

Doctor of Philosophy in Political Science

University of California, Berkeley

Professor Ruth Berins Collier, Co-Chair

Professor Alison Post, Co-Chair

The dissertation examines the political challenges of public utility reform through the analysis of urban water and sanitation services in Mexico. Decentralization of services to municipal governments was coupled with promotion of “market-based” policies in the 1980s and 1990s. However, the unpopularity of these policies provided political obstacles for mayors now charged with reforming the sector because many consumers were not accustomed to paying for water services. These policies—increased water prices, rigorous fee collection practices, and service suspension for non-payment—were political costs felt in the short-term, whereas the benefits of reform were long-term service improvements in water quality and quantity, reduced environmental pollution, and increased economic and social development. This problem of time inconsistency is a challenge even for pro-reform mayors because mayors in Mexico have a narrow window of time within which to enact policy. Mayoral administrations are three years long with no immediate re-election, and bureaucratic administrators follow the electoral cycle, which further exacerbates the challenge of long-term policymaking.

Based on a comparative analysis of nine Mexican municipalities, I argue that mayors whose constituent base is primarily composed of middle and upper income consumers and business are more likely to reform because these groups are more able to pay short-term costs for long-term service improvements than the urban poor. With the support of a pro-reform mayor, reform is likely under two conditions: a) the presence of a water intensive industry and b) institutional support from the state government. Water intensive industry prioritizes improvement in service delivery, calculates costs based on the long run, and, further, has long-term financial and professional ties in the community. Water intensive industry is well positioned to support the policy process over time by participating in the leadership of the water utility board of directors. Also, water intensive industry can help offset the costs of reform because it pays more per cubic meter through a block tariff pricing scheme, a policy that subsidizes domestic consumers and helps to finance the reform agenda. Therefore, water intensive industry can lengthen the political problems of imposing costs in the short-term for mayors, lowering the costs to consumers before the long-term benefits of service improvements appear. Finally, state governments can provide legal, fiscal and technical resources that can help shorten the learning curve of incoming mayoral administrations. As such, state government can shorten the long-term planning of the reform process to make it more consistent with the shorter electoral cycle found at the municipal level.

This research advances debates on policy adoption and implementation, highlighting the importance of political-business coalitional support as well as the role of inter-tier relations in maintaining policies over time.

For Benjamin, with love and appreciation

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Acknowledgements

Over the years that it took to complete this project, I have enjoyed the support of numerous colleagues, friends and family. First and foremost, I was fortunate to have Ruth Berins Collier as my advisor and co-chair of the dissertation. Ruth was instrumental in shaping my graduate career from the very beginning. I call her the “dissertation whisperer” because of her gift for advising students on research projects. Her keen insights, sharp analytical mind and high expectations have made me a better scholar; her friendship and support as an advisor have made many challenging moments of graduate school and dissertation writing surmountable. David Collier has provided enormous academic and mentoring support as well as timely professional advice. It has been a pleasure to discover through the years that David’s compassion and kindness rival his impressive professional accomplishments.

I was incredibly fortunate to have Alison Post join us at Berkeley in the later years of my graduate work, and provide extensive academic advising on my dissertation. Not only is Alison an expert on water and sanitation policy and political economy, but she has proved to be an amazing advisor, and I was thrilled to have her as co-chair of the dissertation. Kent Eaton provided me with a copious amount of feedback, and challenged my thinking about subnational politics and decentralization. Kent’s reputation precedes him, but it bears underscoring that he is both brilliant and incredibly kind and positive, which has made working with him a highlight in my graduate career. I have benefited in countless ways from asking Isha Ray to join my committee, which she graciously did even though she knew little about me or my work at the time. Isha’s guidance on water policy and research design has been invaluable. Alfredo Montero, Cecilia Martinez-Gallardo, Jessica Trounstone, and Thomas Remington have provided helpful comments on earlier versions of the argument. Other Berkeley faculty, such as Steve Vogel, Kiren Chaudhry, Todd Laporte, Andrew Janos, Jack Citrin and especially Laura Stoker, have shaped my thinking and graduate education.

I have benefitted immensely from the ongoing feedback, advice and friendship of my fellow Latin Americanists at Berkeley. Diana Kapiszewski, Maiah Jaskoski, Taylor Boas, Candelaria Garay, Tasha Fairfield, Wendy Sinek, and especially Mauricio Benitez provided fantastic intellectual support and professional advice during the early years of graduate school and field research. I have also counted on the collegial yet pointed feedback of Lindsay Mayka, Neal Richardson, Danny Hidalgo, Simeon Nichter, Miguel de Figueirido, Adam Cohon, Brian Palmer-Rubin, Benjamin Lessing, Coach Walker, Ben Allen, Sam Handlin, Jessica Rich, Christopher Chambers-Ju, Beth Nietzel, Quinlin Bowman and Olivia Miljanic. Other colleagues outside of my field have also been instrumental: Jody Laporte has provided extensive and invaluable feedback and I have also benefitted from discussions with Danielle Lussier, Matthew Grossmann and Sarah Reckhow through the years. I would like to make a special note of my dear friends Crystal Chang Cohen and Amanda Hollis-Brusky, without whom I am confident I would not have survived graduate school. More recently I have learned a tremendous amount from my colleagues in the Energy and Resources Group, during our interdisciplinary “water group” meetings under the tutelage of Isha Ray.

While in Mexico I amassed too many debts to mention here. José Campos, Félix Hernandez Gamundi, Rolando Springall, Luis Salmones, Ricardo Sandoval Minero and Emiliano Rodríguez

stand out as having graciously shared countless hours of interview time, and made an important impact on my understanding of Mexico's water and sanitation sector. Academics in Mexico, such as Boris Marañón, Sonia Davila Poblete, Roberto Melville, David Barkin, Luis Aboites and Maria Luisa Torregrossa provided valuable assistance in the preliminary stages of field research. I want to thank two institutions where I was affiliated during my research, the Centro de Investigación y Docencia Económicas (CIDE) and the Instituto de Investigaciones de Económicas, Universidad Autónoma Nacional de México (UNAM). Finally, I am indebted to the institutions that provided financial assistance during my field research and writing stages: the Fulbright-García Robles Foundation, the University of California Institute for Mexico and the United States (UC Mexus), the Institute for International Studies at UC Berkeley, the Social Science Research Council (SSRC) and the Mellon Mays Foundation.

Family has been instrumental in my academic and personal development throughout the years. My father, Enrique Herrera, instilled in me a love of books and knowledge at an early age, and fills my life with good humor. My brother Sebastian Herrera's strength and tenacity has inspired me in countless ways. I have had the good fortune to marry into an amazing family: Ben and Sharon Wiles have supported me through the years as one of their own, and Laura and Ted Wiles have become a true sister and brother. My husband, Benjamin Wiles, has filled my life with so much joy and love, and aided me in innumerable ways throughout the dissertation writing process. I have depended on him more than anyone else throughout this long journey. Finally, my mother, Mirta Ruiz Herrera, is my best friend and mentor in all things. I write these acknowledgements while pregnant with our first child, a daughter. If I could provide her with half of the unabiding support and friendship my mother has provided me, my daughter would be truly blessed.

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List of Acronyms

| | |
|----------|---|
| ANEAS | Asociación Nacional de Empresas de Agua y Saneamiento |
| APAZU | Agua Potable y Alcantarillado en Zonas Urbanas |
| AYS | Agua y Saneamiento (de Toluca) |
| BANOBRAS | Banco Nacional de Obras y Servicios Públicos |
| CAEM | Comisión del Agua del Estado de México |
| CAEV | Comisión del Agua del Estado de Veracruz |
| CAEV PR | Comisión del Agua del Estado de Veracruz, Poza Rica |
| CEAG | Comisión del Estado del Agua de Guanajuato |
| CEAPA | Comisión Estatal del Agua Potable (de Veracruz) |
| CEAS | Comisión Estatal de Agua y Saneamiento (de Veracruz) |
| CMAS | Comisión Municipal de Agua y Saneamiento (de Jalapa) |
| CNA | Comisión Nacional del Agua |
| CNI | Comisión Nacional de Irrigación |
| DGAPA | Dirrección General de Agua Potable y Alcantarillado |
| FIFAPA | Fondo de Inversiones Financieras de Agua Potable y Alcantarillado |
| GATT | General Agreement on Tariffs and Trade |
| IADB | Inter-American Development Bank |
| IHEM | Instituto Hacendario del Estado de México |
| IMF | International Monetary Fund |
| JUMAPA | Junta Municipal de Agua Potable y Alcantarillado (de Celaya) |
| JUMAPI | Junta Municipal de Agua Potable de Irapuato |
| NPM | New Public Management |

| | |
|----------|---|
| OAPAS | Organismo de Agua Potable, Alcantarillado y Saneamiento (de Naucalpan) |
| ODAPAS | Organismo Descentralizado de Agua Potable, Alcantarillado y Saneamiento (de Nezahualcoyotl) |
| OECD | Organization for Economic Cooperation and Development |
| PAN | Partido de Acción Nacional |
| PRD | Partido de la Revolución Democrática |
| PRI | Partido Revolucionario Institucional |
| PRONASOL | Programa Nacional de Solidaridad |
| PROSSYPS | Programa de Agua Potable y Saneamiento en Comunidades Rurales |
| SARH | Secretaría de Agricultura y Recursos Hidráulicos |
| SRH | Secretaría de Recursos Hidráulicos |
| SAHOP | Secretaría de Recursos Hidráulicos y Obras Públicas |
| SAPAL | Sistema de Agua Potable y Alcantarillado de León |
| SAS | Sistema de Agua y Saneamiento (Metropolitano de Veracruz, Boca del Río y Medellín) |
| SEMARNAT | Secretaría del Medio Ambiente y Recursos Naturales |

Chapter One:

Extending Short Policy Horizons in Weak Institutional Settings

1.1. INTRODUCTION

Under what conditions do politicians assume the short-term political costs associated with implementing policies that yield long-term social benefits? When seeking to improve, for example, public infrastructure, public service provision, or public education, politicians must often enact policies that incur short-term costs in order to fund public policies and projects that have long-term benefits. Politicians that impose these costs—such as tax increases or elevated service fees—on citizens risk alienating their constituents, fomenting strikes and civil unrest, and hurting their chances for re-election. Investing in tomorrow’s development needs is a particularly risky endeavor for politicians in developing countries, where majorities of populations often live below the poverty line, and the likelihood of economic and political instability is already high. Investing in long-run policies is further complicated by the short policy horizon most politicians face in office. One or two administrations is rarely enough time to complete infrastructure projects or overhaul an educational system, making the political costs associated with these reforms more acute.

The dissertation examines the political challenges of reforming urban water and sanitation¹ services in Mexico. In the 1980s and 1990s, decentralization of services to municipal governments was coupled with federal level promotion of “market-based” policies in the sector, which emphasized cost recovery policies such as increased water prices, rigorous fee collection practices, and service suspension for non-payment. While the costs of reform were felt in the short-run, the benefits of reform were long-term service improvements such as increased coverage, service continuity and water quality. These improvements promised to yield important health benefits, promote regional economic development, and help reverse decades of environmental pollution.

Market-based public policies represent a new policymaking agenda in developing regions. As privatization and other market reforms popular in the 1990s have been discredited in recent years,² governments have increasingly introduced market-oriented strategies in public service provision while retaining public ownership and management of services. These policies are intended to bypass the political unpopularity of privatization, raise capital financing for the maintenance and improvement of infrastructure,³ increase service provision quality, and promote

¹ By water and sanitation sector, I mean the urban municipal water and sewage grid. This sector is composed of water extraction, treatment, transportation and delivery for residential, commercial and industrial users who are formally connected to the grid, as well as sewerage removal, transportation, treatment and disposal. Agricultural water use is governed by separate institutional arrangements and is outside the scope of this study.

² For a discussion of the waning of privatization as a politically viable policy option for infrastructure development and service provision, see Fay and Morrison (2006). Aside from empirical observations of declining public support, see academic scholarship that highlights privatization “failure” cases (Prasad 2006), Davis (2005), Lobina (2005), Budds and McGranahan (2003). See Birdsall and Nellis (2003) for a discussion of public opinion toward privatization.

³ Infrastructure projects are long-term investments because raising revenues in the short-run allows for a greater percentage of operational budgets to go towards maintenance and long-run infrastructure investment, producing better service in the long-run.

environmentally sustainable urban development. These reforms are seen not only in the water and sanitation sector, but also in electricity, trash collection and regional transportation.⁴

Despite the numerous benefits an extensive reform process would yield in infrastructure and public service provision, market-oriented policies are notoriously difficult to implement. Scholars have documented how infrastructure development—such as telecommunications, electricity and water—have high political visibility and are therefore prone to government intervention (Victor and Heller 2007; Savedoff and Spiller 1999). Victor and Heller argue that infrastructure development has traditionally been left to the public sector not only because of their monopoly characteristics, high capital costs and long time horizons, but also because public utilities tend to deliver services that are considered to be social goods. In developing countries, state owned enterprises have historically been tasked with fulfilling social obligations such as providing employment, environmental protection, and providing equitable and accessible services to the poor (Victor and Heller 2007, 1-2, 23). These social objectives make market-oriented practices politically difficult to implement (Victor and Heller 2007, 23; Savedoff and Spiller 1999, 6). Savedoff and Spiller argue that reforms in the water and sanitation sector is even more challenging than reforms in telecommunications and electricity, because of a high level of social resistance to paying for water in developing countries. Government intervention, particularly in maintaining highly subsidized pricing and delayed billing, helps lead to a phenomenon Savedoff and Spiller classify as “low-level equilibrium,” a phenomenon common in the water and sanitation sector. A stable equilibrium develops when government opportunism allows for low water prices, which fails to generate enough revenue to improve service, leading to continued poor service provision. Poor service provision includes low coverage, water rationing, cash hiding by employees, and over-employment (Savedoff and Spiller 1999, 14). In a low-level equilibrium, both prices and service quality are kept low, and neither politicians nor consumers have an interest in changing the status quo. Given the propensity of political interference to undermine public service delivery, authors working in the new institutional economics literature and international financial institutions have argued that in order to successfully implement reforms, service providers will need to be separated from political intervention (Ménard and Shirley 2008; Henisz et al. 2005; Savedoff and Spiller 1999; Levy and Spiller 1994).

This study takes as a starting point that cost recovery policies are politically difficult to implement because of the low-level equilibrium inherent to the water sector, the short-term political costs associated with increasing prices, and the long-term window necessary for infrastructure development. The challenges of implementing reforms in the short-term that yield long-term benefits are further compounded in the context of Mexican municipalities. Mayors in Mexico have a short time horizon because of the electoral cycle: mayoral administrations are three years long with no immediate re-election. The short time horizon of a one time mayor is further exacerbated by the lack of a civil service at the local level; key staffers follow the

⁴ For examples of these types of market-based reforms, see Fay and Morrison (2006), the Asian Development Bank (2005), and case studies as varied as Sri Lanka (Nauges and Van den Berg 2006), South Africa (McDonald and Pape 2002) and Nigeria (Whittington et al. 1990).

electoral cycle and administrative turnover is high.⁵ Given these constraints, cost recovery reforms in the water and sanitation sector seem unlikely—yet I find that reforms did occur, and varied considerably, throughout Mexico.

Under what conditions do municipal governments enact and implement market-based policies to finance infrastructure upgrades that offer long-term improvements in public service provision? Based on a comparative analysis of nine Mexican municipalities, I argue that mayors whose constituent base is primarily composed of middle and upper income consumers and business are more likely to reform because these groups are more able to pay short-term costs for long-term service improvements than the urban poor. With the support of a pro-reform mayor, reform is likely under two conditions: a) the presence of a water intensive industry and b) institutional support from the state government. Water intensive industry prioritizes improvement in service delivery, calculates costs based on the long run, and, further, has long-term financial and professional ties in the community. Water intensive industry is well positioned to support the policy process over time by participating in the leadership of the water utility board of directors. Also, water intensive industry can help offset the costs of reform because it pays more per cubic meter through a block tariff pricing scheme, a policy that subsidizes domestic consumers and helps to finance the reform agenda. Therefore, water intensive industry can lengthen the political problems of imposing costs in the short-term for mayors, lowering the costs to consumers before the long-term benefits of service improvements appear. Finally, state governments can provide legal, fiscal and technical resources that can help shorten the learning curve of incoming mayoral administrations. As such, state government can shorten the long-term planning of the reform process to make it more consistent with the shorter electoral cycle found at the municipal level. This research advances debates on policy adoption and implementation, highlighting the importance of political-business coalitional support as well as the role of inter-tier relations in maintaining policies over time. I find that service provision and politics are inextricably linked—indeed, political support is crucial for the implementation of cost recovery policies.

This chapter proceeds as follows. First, I lay out alternative explanations for this study, situating the research project within a broader set of literatures. Second, I present the conceptualization and measurement of the dependent variable—the market-based reform outcome—and score each of the nine cases based on the dependent variable index I construct using twenty indicators of reform. Third, I present my argument in detail, explaining the conditions under which mayors and business adopt and implement reforms, as a result of the presence of water intensive industry and state level support. Finally, I present the research design, methodology and case selection for the dissertation, and provide an overview of the subsequent dissertation chapters.

⁵ Mexican politics is characterized by cadre politics or *charrismo*, the placement of personal cliques loyal to the politician in important bureaucratic posts, which further narrows the policy window as there is a high amount of administrative personnel turnover.

1.2. ALTERNATIVE EXPLANATIONS

This research provides a new theoretical explanation for market-based policy outcomes in municipal settings, making contributions to two key literatures. First, I utilize a new and understudied empirical setting to examine key questions in the market reforms literature. Why do some governments adopt painful reforms, while others do not? Why do policy design and sustainability take on different forms in different contexts? Theoretical perspectives stressing the importance of several agency-based factors are at times relevant for the context of the reforms I examine, but are discounted as the principle explanatory variable. For example, the role of foreign influenced technocrats, and the policy consensus and mental models associated with them, has been argued to be an important factor in pushing forward reforms (Kogut and MacPherson 2008; Murillo 2009, 2002; Madrid 2005; Weyland 2004a; 2004b; Teichman 2004, 2001; Dominguez 1997; Centeno 1994). I argue that while these mental models were important in crafting and adopting federal level market-based policy, the technocratic policy consensus does not account for subnational adoption and implementation of reforms. The empirical setting of municipal policymaking demonstrates the great distance between macro level policy design and subnational policy adoption and implementation. In a similar vein, agency is not absent in the empirical setting under study, but rather than argue that leadership alone explains reform outcomes (Van Cott 2008; Grindle 2007), I explain the *conditions* under which leaders either push for reforms, or decide reforms are too detrimental to their interests.⁶ Finally, political economy scholarship focusing on the importance of ideology (Murillo 2009; Martinez-Gallardo and Murillo 2009; Kapur 2004; Appel 2000; Jenkins 1999) falls short of explaining municipal reforms because, as I argue in the dissertation, mayors in Mexico are much more programmatic than ideological. Mayors are more interested in responding to the immediate material needs of their primary constituents (social benefits, road paving, street lighting, water service) than strictly adhering to a particular position within an ideological spectrum. Therefore, mayors—and their local party base—are much more willing to bend their policymaking to fit their immediate electoral base, even when it contradicts the ideological platform of the national or state level “ideological brand” of their party. Mayoral policy preferences may vary from their national and state level counterparts or there may be regional variations within a partisan platform.

The role of financial pressures in inducing market reforms has been another line of argumentation in the market reforms literature (Teichman 2001; Stallings 1992). Similarly, one might ask if the municipalities that were in the worst conditions vis-a-vis their water sectors and with fewest financial resources were more likely to reform. I argue that municipalities prior to reforms were in similar states of disrepair, with poor service provision and few resources. Therefore, the municipalities facing the most pressure to reform (structural or financial) did not necessarily reform. Similarly, levels of state capacity (Evans 1995; Haggard and Kaufman 1992) does not account for the variation in reform outcome because municipalities prior to reforms had comparably low levels of bureaucratic and administrative strength. While state capacity is an

⁶ For example, I argue that mayoral support (a form of leadership) is important for reforms, but if mayoral leadership were the only variable present, we would not know under what conditions mayoral leadership is present. While individuals matter, the *structural* conditions under which individuals are prompted to act more thoroughly account for variation in reform outcomes.

important mechanism by which reform policies are implemented, it alone was not predictive of successful reform adoption.

Finally, scholars building on the work of Mancur Olson (1982) have examined the role of business support and business coalitions in policymaking (Schneider 2004; Etchemendy 2004; Murillo 2001; Kingstone 1999; Corrales 1998; Maxfield and Schneider 1997). These works tend to focus on the relationship between business elites and national level policymakers, specifically national executives and legislatures. In particular, prevalent theories of coalitional business-government alliances have emphasized collusion and rent-seeking behavior between political and economic power. In examining collective action and coalition building associated with economic liberalization, Schamis (1999) argued that collusion between economic and political power was ubiquitous in the distributional coalitions that drove policy reform in Latin America during the 1980s and 1990s. Coalitional approaches have been used to explain important policy outcomes during this period, such as privatization and macro-economic adjustments, where political power favors economic allies (often domestic capitalists), in order to pass reforms (Corrales 1998; Etchemendy 2004). When business and political power collaborate to implement market reforms, they do so to receive inclusive benefits of some sort, such as increased economic performance, preferable trade conditions (Thacker 2000), or in some cases, direct material concessions (Etchemendy 2004). Coalitional approaches explaining market reforms have also emphasized the importance of credible commitments and political signals from politicians in mobilizing political support from business groups (Kingstone 1999). Even scholars who emphasize that business and political actors can facilitate policy coordination whose benefits are more widespread, and not *collusive* in nature (Schneider 2004), still point to policies whose benefits for the mass public would be diffuse, ambiguous, and at times *selective*, such as economic stabilization pacts and trade agreements.

In contrast, I emphasize how business can ally with the state to help expand the policymaking capacity of government, and help distribute *inclusive* benefits more widely to a broader population through public service expansion. I model the local business-mayoral alliance as a form of governmental and civic cooperation that helps to compensate for the weakness of municipal government and provide *inclusive*, rather than *selective*, benefits.

Second, this research also contributes to theories of decentralization by focusing on the politics of policy implementation *after* decentralization reforms. Existing debates in the literature on decentralization have centered on the pros and cons of decentralization, and specified the condition under which countries decentralize (O'Neill 2005; Montero and Samuels 2004; Eaton 2004). Instead, this project explores the impact of market-based reforms after decentralization occurs and the impact of such reforms on local governance capacity.⁷ I find that decentralization reforms change the initial institutional context under which further policy reforms may or may not occur, but do not necessarily make government more effective. I contribute to a growing body of work that acknowledges the limits of decentralization as a panacea,⁸ but by focusing

⁷ Others who have examined the intersection between subnational politics and market reforms include Wibbels (2005), Montero (2002) and Snyder (2001a).

⁸ For examples of decentralization advocates, see Weingast (1995), Oates (1972) and Tiebout (1956). For examples of scholars critical of decentralization as a panacea, see Prud'homme (1995), Tendler (1997), Fox (1994) and Oxhorn (2004).

specifically on a type of administrative decentralization (as opposed to fiscal or political), I examine how decentralization illuminates the strengths and weaknesses of subnational policymaking. While most decentralization studies have focused on fiscal decentralization (the economics influenced fiscal federalism literature) and political decentralization (the comparative politics literature), administrative decentralization has been understudied. Relatively few studies have focused on administrative decentralization,⁹ although as Falleti (2010, 33) notes, administrative and fiscal decentralization are strongly connected in practice. By examining the aftermath of decentralization policies in the water and sanitation sector, I shed a spotlight on the evolution of municipal policymaking in newly decentralizing countries.

In doing so, this project underscores the changing nature of federalism as not two, but *three* tiers of government attempt to coordinate across a policy arena, with varying degrees of success. The political science literature on decentralization has privileged the interaction between the federal and intermediate level of government (state or provincial), while understudying the role of local governments (Eaton 2008). Furthermore, decentralization is often conceptualized as the federal government fully ceding autonomy to sub-national governments—a phenomenon that rarely happens. “Shared authority” between two or three tiers of government is the most prevalent feature of decentralization transfers, but often ignored in the decentralization literature.¹⁰ In this manner, I conceptualize why state and municipal governments have different interests, incentives and resources, and under what conditions they may choose to collaborate.

Exploring municipal policymaking is increasingly important because in many developing countries, decentralization transfers have placed responsibility for service provision at the local level. Metropolitan areas are struggling with the increasingly challenging task of providing basic services such as water, sanitation, transportation, public safety and local transportation,¹¹ while simultaneously mitigating some of the negative consequences of rapid urban expansion, such as pollution and environmental degradation.¹² However, political science has yet to develop an expansive literature on municipal politics and urbanization outside of the United States.¹³ My research extends beyond traditional debates in the decentralization reforms literature, and emphasizes the importance of theorizing about municipal policymaking and its impact on social and economic development issues.

1.3. THE MUNICIPAL POLICY REFORM OUTCOME

1.3.1. Background and Definitions

Why are market-based policies in water provision an important set of policies to examine, and how are they defined in this study? As will be discussed in Chapter 2, these policies were

⁹ Grindle (2004) and Kaufman and Nelson (2004) are important exceptions. See Falleti (2010, 33) for a discussion.

¹⁰ For a discussion of the concept of multi-tiered shared authority, see Rodden (2004).

¹¹ See World Bank (2009) for an overview of decentralization and municipal service responsibility throughout the world.

¹² For urbanization trends and their impact, see Montgomery (2008), Gugler (2004), Cohen (2004), and Davis and Tajbakhsh (2005).

¹³ Important exceptions on municipal analysis in the developing world include Landry (2008), Grindle (2007), Dietz and Myers (2002), Tendler (1997) and Nickson (1995).

promoted by the federal government¹⁴ in Mexico following decentralization of service provision to municipalities, following a long period of centralized and subsidized federal management of services that began in the 1980s.¹⁵ Underdevelopment of water and sanitation services was seen by the federal government as limiting the nation's economic and social development. Years of neglect to the country's municipal water networks had led to corroded pipes. Although infrastructure covered 81% of the country by 1992 (Comisión Nacional del Agua 1992), service was characterized by poor water quality, limited water pressure, intermittent service, and a loss of approximately 50% of water through the piped network before reaching consumers. Underground aquifers were being exploited at a faster rate than they were being replenished, and many cities had to begin to transport water across great distances, increasing the percentage of water lost through piped transport. Similarly, sewage infrastructure extended through only 65% of the country in 1992. Wastewater (both gray water and industrial waste) frequently went untreated and was routinely dumped into lakes and oceans, often inside of the city's limits and close to domestic dwellings. Low water prices and virtually non-existent collection practices were blamed for under-financing of the sector, which led to federal level design of market-based policies. These policies were meant to eliminate poor service quality, reduce health risks associated with untreated water and wastewater contamination, and promote social and economic development. In conjunction with these material improvements, market-based policies were intended to increase fiscal oversight of user fees, eliminate clandestine connections and the black markets that had developed between water utility employees and consumers in water provision. In short, service quality improvements, protection of hydraulic resources, and reduction of rent-seeking opportunities inherent in discretionary service provision were the primary motivators of implementing market-based-reforms in the sector.

1.3.2. Conceptualization

I conceptualize the municipal reform outcome to be a process of policy adoption and implementation which has three dimensions: fiscal, operational and institutional. While these categories are derived from reform initiatives in the water and sanitation sector, they would apply to a wide range of public services and policies. First, the *fiscal dimension* of a reform outcome refers to the financing strategies adopted for the policy, which may require transfers and revenue streams derived from state and federal governments, the private sector, and/or consumer fees or taxes on the service in question. In the case of Mexico's water sector, these policies were primarily cost recovery policies.¹⁶ Cost recovery was based on the economic valuation of water,¹⁷ which stood in stark contrast to widely held perceptions of water as a public good historically subsidized by the government in Mexico. Financing strategies are highly contentious and often hinge on ideological preferences and commitments of local politicians, as well as relationships with other tiers of governments. While few would argue against modernizing and making a technical service such as a water provision more efficient, the question of how this

¹⁴ These policies were designed by foreign trained technocrats in the water sector, with the support of international aid organizations such as the World Bank.

¹⁵ While prior to these decentralization transfers the two subnational tiers of government had formal authority over water delivery as inscribed in the Mexican Constitution, the federal government controlled service provision in practice.

¹⁶ These policies have been widely documented. For example, Saavedra and Rodriguez (1987), Castellanos (1987), González Villarreal (1993), and Comisión Nacional del Agua (1992-1998).

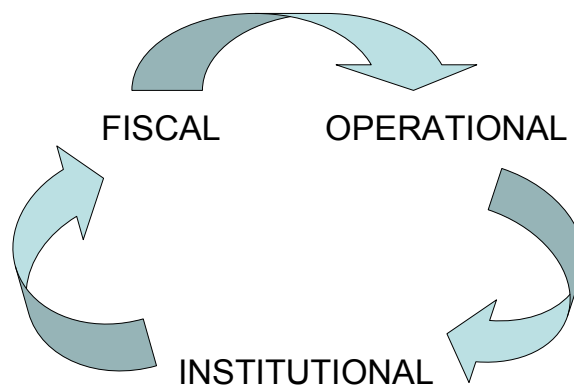
¹⁷ For a discussion of the economic value of water, see Hanemann (2006).

reform process will be financed becomes highly politicized due to the political contentiousness of raising consumer fees.

Second, *operational aspects* of the reform outcome are key to the reform process. It is not enough to raise funds for reform; funds must be allocated to begin a substantive process of physical changes in service provision, such as updating the network infrastructure and implementing water quality controls. In the water sector, these changes are largely operational and infrastructural in nature, and they have a symbiotic relationship with the financing strategies adopted. The greater the revenue stream, the greater the possibilities for operational reforms.

Finally, municipal reform consists of *institutional changes* in the governance capacity of and the institutional norms within the municipal water utility. These institutional changes are the glue that connects the fiscal and operational aspects of reform. These three aspects all work together in an ongoing feedback loop to produce a recurring outcome of reform over time. While fiscal reforms tend to be the first elements of reform, they are quickly followed by visible improvements in infrastructure maintenance, as well as institutional norms, such as education and training in the workforce, and greater attention paid to consumer relations. It is important that these reforms function as complements to one another because visible improvements in service provision, customer relations and workforce efficacy helps to further justify the costs of reforms for consumers, such as fee increases, more rigorous fee collection practices, and elimination of clandestine connections.

Figure 1.1. Conceptual Dimensions of Municipal Policy Reform



Finally, it is important to note that the outcome I am interested in measuring and explaining is a policy *adoption* and *implementation* process, not changes in the quality of service provision. While the outcome to be explained is not the actual performance of the service itself,¹⁸

¹⁸ A high reform case would then presumably generate higher performance measures over time, but that is another causal link (from increased reform to increased performance) that is outside the scope of this study. While I have gathered data to measure performance (sectoral indicators such as water and sanitation coverage, service continuity, water quality, etc) for the 2007-2008 period, there are other factors (historical, environmental) that may affect the exact chemical content of a city's potable water, or, for example, explain the difference between one city's 12 hours

my research suggests that cases of high reform are associated with high service quality, as measured by performance indicators within the sector, including increases in service coverage and improvement in water quality. Table 1.1 compares performance indicators before and after the reform process in two Mexican municipalities under study, illustrating the correlation between market-based reforms and increased performance.

| Table 1.1. Performance Measures Before and After Reforms | | | | | | |
|--|------------------------|---------------------------|--|---|---|--|
| | Water Coverage (% pop) | Sewerage Coverage (% pop) | Service Continuity (% of pop with uninterrupted service) | Billing Efficiency (% of total \$ collected/ total \$ billed) | Metering (% of installed domestic meters) | Physical Efficiency (% of total volume delivered/total volume extracted) |
| Leon (Pre-Reforms 1992) | 90 | 92 | 45 | 40 | NA | 40 |
| Leon (Post Reforms 2008) | 99 | 99 | 99 | 93 | 100 | 63 |
| % Change | +9 | +7 | +54 | +53 | NA | +23 |
| Celaya (Pre-Reforms 2000) | 95 | 79 | NA | 51 | 0 | 70 |
| Celaya (Post-Reforms 2008) | 95 | 99 | 99 | 78 | 62 | 82 |
| % Change | 0 | +20 | NA | +27 | +62 | +12 |

Sources: Comisión Estatal del Agua de Guanajuato 2007, INEGI, Sistema de Agua Potable y Alcantarillado de León (1996), and internal figures from JUMAPA (Celaya).

1.3.3. Measurement

How do I measure the reform outcome in question in the water and sanitation sector? In order to operationalize these three dimensions of reform (fiscal, operational and institutional), I have created an index with three corresponding categories. The index is based on an ordinal scale whereby each indicator is worth 0, 0.5 or 1 point, aggregated to produce subtotal scores for each of the nine municipal cases in each subcategory, as well as a total numerical score for each of the nine cases. In Table 1.2, I identify the indicators chosen for each of the three categories, which total twenty indicators.

of daily service versus another city's 18 hours. These distinctions in service quality have informed my work, but because I am interested in explaining the politics of the reform process, performance indicators themselves are not the dependent variable under study.

I strongly emphasize fiscal dimension, which I call “cost recovery policies,” because the elimination of federal subsidies made cost recovery policies the primary method of financing. Because cost recovery policies are so important to the reform process, they comprise 50% of the total weight in the index (totaling 10 out of 20 indicators). Cost recovery policies are comprised of pricing policies and collection practices, which are outlined in great detail for each of the nine cases in the three empirical chapters.¹⁹

In the second category, “operational practices,” I identify five indicators that capture the primary operational improvements in the sector, which focus on the overall health of the network infrastructure grid (including pressure management, digitalization and measurement improvements, and water supply management). Again, these indicators capture the extent to which operational policies are implemented, which will lead to improved service performance.

In the third category, “institutional policies,” I select five indicators that measure human resource management and organizational strategies within the water utility, as well as responsiveness and transparency with consumers. These are the glue that binds the fiscal and operational practices together, but they are not small tasks. The Mexican municipal environment has no formal civil service training and suffers from endemic rotation of staff during each new municipal administration.²⁰ Modernized water utilities which have institutionalized these norms have less volatility in the human resources and organizational component of service provision.

These twenty indicators have been chosen based on 15 months of field research and training in Mexico’s water and sanitation sector. I code these indicators using both qualitative data (including over 150 in-depth interviews) and quantitative data (including performance indicators). Table 1.2 describes each category of analysis, indicator and the possible values for each indicator.

| Category | Subcategory | Indicator | Score Domain |
|--------------------------------|------------------------------|---|--|
| Fiscal: Cost Recovery Policies | Pricing Policies/ Structures | 1. Is (new) pricing structure consumption based, with built in cross-subsidies? | 0.0 =no 0.5 =somewhat 1.0 =yes |
| | | 2. Are non-water consumption service concepts (e.g. new meter installations, new tube placements, service installation) standardized across concepts? | 0.0 =no 0.5 =somewhat* 1.0 =yes |
| | | 3. Are new prices indexed (or otherwise regularly updated), guaranteeing periodic, incremental increases? | 0.0 =no 0.5 =indexing to minimum wage or similar category 1.0 =indexing to cost calculations or similar category |
| | | 4. Are prices published annually or otherwise made publicly available? | 0.0 =not periodically 0.5 = periodically |

¹⁹ Changing the number of fiscal reform indicators to 5 (rather than 10) does not change the ordinal rank of the nine cases.

²⁰ This is common throughout local government, see World Bank (2009, 193).

* In practice, the “somewhat” category for this indicator is unlikely.

| | | | |
|-----------------------|----------------------|---|--|
| | | | but not for all price change 1.0 =fixed periodic publication for all price changes |
| | | 5. Are pricing decisions based on cost of service indicators or other cost based methodology? | 0.0 =no 0.5 =somewhat 1.0 =yes |
| | Collection Practices | 6. % of meter installation | 0.0=for lowest 3 0.5=middle 3 1.0= highest 3 |
| | | 7. Is service routinely (partially) suspended for non-payment?*** | 0.0= no 0.5= some 1.0= formal policy |
| | | 8. Are clandestine connections routinely monitored and eliminated? | 0.0 =no 0.5 =some 1.0 =yes |
| | | 9. Are new, “easier to use” payment options created to promote bill payment (e.g. electronic modes of payment, raffling household items, more payment centers and customer relations windows)? | 0.0 =no 0.5 =some 1.0 =yes |
| | | 10. Are civic outreach programs created to promote a “culture of payment” (e.g. pricing comparatives, advertising benefits of payment for service development)? | 0.0 =no 0.5 =some 1.0 =yes |
| Operational Practices | | 11. Are “leaks elimination campaigns” undertaken in order to increase water supply and regularize pressure throughout the network? | 0.0 =no 0.5 =somewhat 1.0 =yes |
| | | 12. Is pressure regularized throughout the network by creating elevated storage tanks or applying “breakers” in the entry points throughout the grid? | 0.0 =no 0.5 =some 1.0 =yes |
| | | 13. Does the network become more automated, or “digitalized” (more measurement of how much, and where, and where, water enters and exits the grid)? | 0.0 =no 0.5 =partially 1.0 =yes |
| | | 14. Have water quality testing and procedures been routinely implemented (as measured by increase in potable water treatment plants, adhering to testing methodology (anything above chlorination), tracking water quality indicators)? | 0.0 =no 0.5 =some 1.0 =yes |
| | | 15. Are sewerage treatment plant facilities constructed and/or in operation? | 0.0=no, or treatment <10% ⁺ 0.5= under construction and will be in construction with treatment > 90% 1.0= yes, in operation with treatment >90% |

***Because of mandates in the Mexican constitution, the service suspensions that are possible are only partial, not full suspensions.

⁺ Some sewerage treatment plants were constructed by federal government years ago, and treat less than 10, even 1% of water, as a symbolic gesture, rather than as an integral portion of the reform process.

| | | | |
|------------------------|--|--|---|
| Institutional Policies | | 16. Level of professionalization of work staff: is workforce made to undergo further training? Are employees well suited for their position given their training, education and experience? | 0.0 =no 0.5 =somewhat 1.0 =yes |
| | | 17. Institutional organization regarding human resources: are new protocols for work staff and job responsibility created and clearly communicated to work staff? Are there redundancies and inefficiencies as measured by interview data and examining human resources chart? | 0.0 =no 0.5 =somewhat 1.0 =yes |
| | | 18. The employee/1000 connections ratio | 0.0= >7 0.5= 5-7 1.0= >4 ^α |
| | | 19. Are new efforts to increase responsiveness to consumers implemented? [e.g., new customer attention centers created, new telephone hotlines created, manned, information tracked] | 0.0 =no 0.5 =somewhat 1.0 =yes |
| | | 20. Does water utility have a functioning website independent from city hall? | 0.0 =no 0.5 =yes, but not high functioning 1.0 =yes |

1.3.4. Scoring the Nine Cases on the Dependent Variable

The degree to which each of the municipalities under study reformed their water provision process varies greatly along the nine municipal cases. The reform process, for the medium and high reform cases, began in the late 1990s to early 2000s, with the exception of one case (Leon) which began in the late 1980s and early 1990s. The reform score for each of the nine cases is taken in 2008, capturing approximately a decade of reform initiatives in the sector.

As indicated by Table 1.3, the reform outcome follows an important pattern: higher cases of municipal reform are found in the state of Guanajuato, while lower cases of municipal reform are found in the state of Veracruz. Mexico State has varied cases of reform, from high, medium to low.

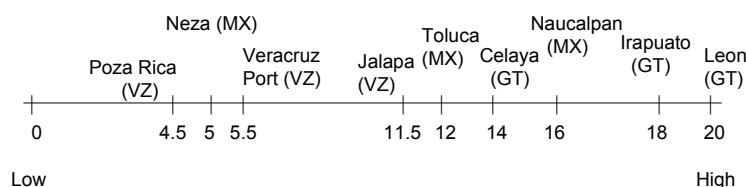
| | Fiscal (10 points) | Operational (5 points) | Institutional (5 points) | Total Reform Score (20) |
|------------------------------|-----------------------|---------------------------|-----------------------------|----------------------------|
| Leon, Guanajuato | 10 | 5 | 5 | 20 |
| Irapuato, Guanajuato | 9 | 5 | 4 | 18 |
| Celaya, Guanajuato | 7.5 | 3.5 | 3 | 14 |
| Naucalpan, Mexico State | 9 | 3.5 | 3.5 | 16 |
| Toluca, Mexico State | 6.5 | 2.5 | 3 | 12 |
| Nezahualcoyotl, Mexico State | 4 | 0 | 1 | 5 |
| Jalapa, | 6.5 | 3 | 2 | 11.5 |

^α The National Water Commission and international agencies (e.g. OECD) recommend a ratio of between 2-4 employees per 1,000 connections as a measure of efficiency in human resources staffing. See World Bank (2002).

| | | | | |
|-------------------------|---|---|-----|-----|
| Veracruz | | | | |
| Veracruz Port, Veracruz | 3 | 1 | 1.5 | 5.5 |
| Poza Rica, Veracruz | 3 | 0 | 1.5 | 4.5 |

The municipal reform outcome I emphasize in this dissertation is the difference between these three patterns (rather than the numerical difference between the nine cases on the reform score). Figure 1.2 provides the score distribution among the nine cases. To produce the nominal categories of reform, I divide the scale equally into thirds. Cases with scores less than 6.6 represent low reform, cases of medium reform fall between 6.6-13.2, and cases with scores higher than 13.2 are high reform. Therefore, as Table 1.4 indicates, there are three cases of low reform, two cases of medium reform, and four cases of high reform. These three nominal categories allow for easily interpretable results that indicate how these nine cases fall into one of three general patterns.

Figure 1.2. Score Distribution for Municipal Cases on Reform Outcome



| Table 1.4. Nominal Categories for Reform | | |
|--|---------------|---------------|
| High Reform | Medium Reform | Low Reform |
| Leon | Toluca | Veracruz Port |
| Irapuato | Jalapa | Neza |
| Naucalpan | | Poza Rica |
| Celaya | | |

1.4. THE ARGUMENT

1.4.1. Mayors and Business—Constructing the Municipal Reform Coalition

The first explanatory variable of the two-fold argument is the presence of a municipal reform coalition. I argue that in the case of Mexico’s water and sanitation sector, the municipal reform coalition is composed of the mayor and local business. Successful reform requires both mayors and business to work in concert in order to initiate and sustain reforms over time. The

following section reviews the preferences of the relevant primary actors, in particular with respect to their short-term and long-term interests and specifies the conditions under which mayors and business support reforms.

1.4.2. Mayoral Electoral Base, Party Mechanism, and Career Incentives

Mayors, like all politicians, must balance their role as a policy maker and their electoral interests. I argue that mayors in Mexico craft policy largely based on their constituent base, which helps them to build a policy repertoire that is either pro-municipal market reforms or anti-reforms. Mayors prefer to respond to their primary electoral base, as well as their party's agenda, in order to advance their future political career options. The electorate is also in this case the consumer. Low income consumers will prefer low prices and un-enforced fee collection in the short-term over improved service in the long-term. Middle/high income consumers will prefer increased prices in the short-term for improved service in the long-term. Although consumers of all income levels would benefit from improved service, I argue that higher income consumers can afford to be more patient than lower income consumers because fee payments cost poor consumers a larger share of their salary.

A mayor must decide whether long-term benefits of the reform process (improved service provision) would appeal to their electoral base over the short-term costs of reform (increased prices, rigorous fee collection practices). I argue that because the reform process hurts vulnerable populations, mayors whose primary electoral populations are the urban poor will be unlikely to initiate reforms. Policies such as price increases, suspension of services for non-payment, and elimination of clandestine connections are politically harmful to mayors who depend on the poor urban vote.

The preferences of low income consumers are also shaped by the absence of systematic targeted subsidies for the urban poor in this sector at the municipal level, which were not systematically implemented. In a different context, cross-subsidies and targeted subsidies for the poor could be designed in such a way as to fully subsidize low income consumers. However, in Mexican municipalities creating targeted social policy in the sector has been a difficult undertaking for several reasons. First, targeted subsidies have been difficult for Mexican municipalities to design for water consumers because of the high organizational and administrative capacity, as well as costs, necessary to gather individual consumer information, keep it updated and accurately apply targeted subsidies accordingly. This type of social policy is beyond what many municipalities—with constant personnel turnover every three years—can muster.²² Second, while cross-subsidies whereby higher volume consumers subsidize lower volume consumers have been implemented in many cases, low volume consumers are still subject to price increases inherent in the cross-subsidy design as compared to older price structures. Third, even when adequate cross-subsidies are in place, low fee collection continue to be endemic in Mexico, making tariff structures just one component of a multi-faceted reform process. While low volume consumers may be subsidized in part through cross-subsidies, the smaller amount they must pay in reform cases where collection is enforced is much higher than

²² Although some state governments are able to apply these targeted subsidies throughout municipalities, my research indicated that these databases—state government and municipal governments—were not aligned, and even that municipal governments usually have different citizen databases than their water utilities.

what they were accustomed to paying when collection practices were discretionary.²³ Therefore, market-based reforms in the water sector are perceived (by the poor and mayors who depend on the poor vote) as disproportionately hurting low income consumers. In municipalities largely comprised of poor and middle income sectors, reforms that threaten the predominant electoral base of the party are unlikely to be initiated.

Although a mayor may only serve one consecutive term, a mayor's party can extend the policy horizon of a one term mayor in two ways, a) by rewarding a pro-reform mayor with future party appointments and b) because if a pro-reform party stays in power over multiple administrations, the pro-reform agenda can be extended. Parties control whether candidates may run for local political offices, local congress, or governorships on a party ticket. Therefore, mayors are responsive to whether the reform process benefits the party in the long-term. Because Mexican law prohibits immediate re-election and the historic PRI regime was hyper-presidentialist, the careers of politicians in Mexico have developed as upwardly accountable to the party machine.²⁴ Mayors are responsive to the party's electoral base in a municipality, which allows the reform process to have a longer time horizon if the reforms are electorally viable to the party.²⁵ As such, the political party is the mechanism by which mayors can assume short-term costs of reform, allowing for an extended time horizon for the reform process.

It should also be noted that individual career ambitions can help extend the short policy horizon of a one-term mayor. A mayor is more likely to initiate reforms if they have career ambitions that would benefit from an impressive performance record of improved service provision during their municipal administration. Upward career mobility within her/his party is strengthened through a mayor's branding and credit claiming of the market-based reform process. In order to benefit politically from reforms during the short window inherent in municipal politics, reforming mayors must widely advertise the gains in service achieved through partial reforms. These might include an infrastructure construction project benefiting a wide number of consumers that can be advertised broadly while the project is still underway, increasing pressure in particular neighborhood by adding water breakers or elevated tanks to regularize pressure in that section of the grid; and running television, newspaper and radio announcements and highway billboards advertising improvements.²⁶ Mayors that continue to be active in local politics, run for state political offices or seek appointments within local and state government or within their own party, benefit from credit claiming around reforms and branding them as their own, and the party's, innovation. If a mayor's electoral base would not be hurt by reforms, but rather reward the mayor for the improved performance, s/he may view municipal services reform

²³ See Table 1.1 for the billing efficiency figures before and after reforms, indicating how much lower payment was prior to the reforms.

²⁴ See Snyder (2001).

²⁵ A key distinction I make is that electoral base is not necessarily synonymous with partisan identification at the municipal level. There may be regional interpretations of the national party platforms throughout the country. Therefore, while the president's platform as a member of the PAN at the national level may take on one form, and while even a PAN governor may have certain ideological and partisan characteristics, a local PAN party may differ greatly from these state and national level party platforms, particularly if the local electoral base has a different composition than that which attracts state level or national level voters. Subsequently, cases of PAN right wing parties not reforming (e.g., in Veracruz City, Veracruz), or cases of PRI left wing parties reforming (Jalapa, Veracruz) are found throughout the nine city comparative analysis.

²⁶ See Passotti (2009) for a discussion of political branding in cities.

as a political opportunity that may propel him/her into higher office, repeat office, or an improved position within their party leadership.

1.4.3. Business Support: Sectoral Logic and Organization

As the highest authority within a city's jurisdiction, a mayor's support is crucial for passing reforms. However, because mayoral administrations are three years long with no immediate re-election in Mexico, other actors must also be involved. In theory, a myriad of civic actors might influence a municipal reform process: neighborhood association leaders, NGOs, consumer groups, religious organizations, and activists, among others.²⁷ In the case of Mexico's water and sanitation sector, however, the primary group supporting the reform process has been local business.²⁸ By local business I refer to business communities (either formal or informal) which represent industrial and commercial activity in a municipality. "Industrial manufacturing" is any for-profit manufacturing by the private sector. "Commercial" is any type of commercial sales of manufactured goods or services to either other businesses (wholesale) or to individual consumers (consumer sales), such as restaurants, bakeries, salons, clothing distributors, etc. These two categories of local business—industrial and commercial—are the two types of businesses that consume water in bulk, and do so for profit. Industrial consumption is typically higher than commercial consumption, but both categories of consumers are wholesale consumers, as opposed to domestic consumers, who are non-profit, residential consumers.²⁹

Why is business support important for these types of reforms? First, business leaders are invested and active in the community for a longer period of time than the tenure of municipal administrations. Unlike the standard Tiebout model (1956), which suggests that businesses can move if services do not suit them, I argue the majority of local businesses have sunk assets in a given locale. For the most part, the municipal economies that make up the nine municipal cases are not comprised of large, industrial groups with international exporting interests but rather small and medium businesses that serve the local community through commercial services or industrial manufacturing for domestic sales, and have their own long standing ties to the city. In contrast, international exporters in Mexico, particularly those who are highly reliant on water, are typically operating at such a scale where they are likely to have their own water concession from the federal government rather than rely on the municipal water grid.³⁰ While the composition of the local economies in the municipalities under study varies, I argue that these economies tend to be comprised of medium sized firms with domestic markets that have significant sunk financial and social costs, making them not easily transient. As active members of their community, local business leaders may serve on the water utility's board of directors. They may also be local civic leaders who pressure for improved service provision. In many cases, these business leaders run

²⁷ As chapters 3-5 of the dissertation demonstrate, neighborhood association leaders and civic groups have been vocal *against* the reform process in Mexican municipalities. Consumer groups and organized citizens have also been vocal in staging protests historically in Mexico over inadequate urban water supply under draught-like conditions; see Bennett (1995).

²⁸ The lack of bottom up pressure in Mexico is consistent with the idea that the historical incorporation of multiple groups and sectors in the PRI stymied the development of a grass roots movement. For a discussion of the lack of "bottom up" civic pressure in Mexican politics and policymaking as compared to other Latin American countries such as Argentina and Brazil, see Garay (2010).

²⁹ Although within domestic consumers, there is a wide degree of variation in terms of how much water is consumed.

³⁰ This is true for companies such as Coca-Cola or Pepsi, for example.

for local office; in other cases, they provide support for political candidates through campaign contributions, and by introducing favored candidates to their influential professional network. Therefore, business prioritizes improvements in service delivery, calculates costs in the long run, and has long-term interests in the community vis-a-vis their financial and professional ties.

The second reason that business support is important for the reform process is that the tariff structure for metered consumption recommended by the federal government has built-in cross-subsidies whereby industrial and bulk consumers pay more per cubic meter of water consumed than small-scale users such as poor and lower-middle income households.³¹ If business is unwilling to support the reform process and pay greater fees per cubic meters consumed, the cross-subsidy model falls apart and the water utility will be unable to generate sufficient income from their cost recovery policies.³² This cross-subsidy block tariff structure subsidizes domestic consumers and helps to finance the reform agenda. Therefore, business can lengthen the political problems of imposing costs in the short-term for mayors, lowering the costs to consumers before the long-term benefits of service improvements appear.

Although the reform process depends heavily on local business support, business may not always be willing to support these types of municipal services reforms. Under what conditions does local business support the reform process? First, local business is more likely to support the reform process if the city is an industrial hub, and an important concentration of industrial manufacturing in the city depends on good quantity (and quality) water. Depending on the sector, different elements of water service may be more or less important. For example, industrial manufacturing such as leather curators and chemical companies may care most about water quantity, whereas in sectors like food and alcohol production, water quality may be most important. Sanitation treatment may be more important for businesses that depend on tourism in beach resorts, or companies who produce large amounts of black waters through industrial production.

Second, business is more likely to support the reform agenda if, in addition to having sectoral interests that necessitate improved water service, the local industries are organized and homogenous enough to be inclined to support the same interests.³³ In municipal economies where industrial production is more homogenous (such as a high concentration of food production or leather curing in one locality) or when water service needs are similar across major

³¹ These tariff structures (increasing block tariffs) are common in developing countries, see Boland and Whittington (2000).

³² I argue that block tariff pricing structure municipalities adopt when reforming their water sector tends to be non-negotiable. The price structure was constructed by a small and homogenous group of hydraulic experts (both engineers and economists) that designed the cross-subsidy tariff structure in the National Water Commission with the aid of international aid organizations beginning in the 1990s. Subsequently, state governments who support the reform process have coordinated state-wide price structures for municipalities promoting the same cross-subsidy designed by the federal government. See Boland and Whittington (2000).

³³ Mancur Olson (1965) famously argued that individual “selective” incentives can stimulate actors to act in a group oriented way. Also see similar arguments about how shared sectoral interests can promote organization efforts for business in Frieden (1991) and Shafer (1994). Others have argued that strong business associations offer politicians opportunities for policymaking and enhanced policy implementation, see Schneider (2004) and Maxfield and Schneider (1997).

industries, organization around infrastructure policy will be more likely than in a fragmented and highly diversified economy with diverse water needs.³⁴

Local business can support the reform agenda in a variety of ways, along a continuum of high to low amounts of support. High business support for reforms may take the form of leadership sponsorship, or “boosterism,” whereby the local business community is organized and vocal about pressuring the municipality for improved services, by sitting on the board of directors, and monitoring the reform process over time. Businesses may also lend tacit support, as evidenced by business presence on the board of directors, and compliance with payment obligations within the cross-subsidy fee structure.³⁵ In cases where business support is moderate, major business groups may be ambivalent about supporting the reform process, but also not necessarily oppose it. In cases where business support is low, local business will continue to want preferential treatment from the water utility and will not galvanize around a reform process.

To predict local business support for reforms, I analyze the business sectors prevalent in each of the nine municipal cases, and their relationship to the mayor and water utility. First, I examine the industrial profile in the municipalities under study³⁶ and evaluate the extent to which each city’s business groups are dependent on high quantity and quality water access.³⁷ Second, from interview and new source data, I examine the organizational strength of each business community and evaluate the level of pressure for reform, given sectoral preferences. Third, I examine the mayoral-business relationship in each city as gleaned from 15 months of field research, over 150 interviews and news source analysis, which are documented in chapters 4-6 of the dissertation.³⁸ The result is an ordinal scheme, from low to high, of business support for reforms.

³⁴ While businesses inclined to support the reform agenda would prefer that all areas of service be improved (e.g. water quality, water pressure and supply, adequate sanitation treatment), the most important element of service to be improved is increased water pressure and increased supply in Mexico. Businesses can filter their water in house but cannot increase their water supply or regularize water pressure on the municipal grid.

³⁵ A concentrated economic elite is also more likely to be well integrated into the political establishment; however these cozy relationships can be a double edged sword for the reform process. If business pressures a mayor for reform, the connection between economic elites and political elites will help expedite the reform process. In contrast, if local business is accustomed to benefiting from discretionary service practices, (e.g. by receiving preferential pricing or exemption from payment), and the mayor is hesitant to force business to comply with a reform agenda for fear of political backlash against major business constituents, then local business will likely not support the reform agenda

³⁶ Because one of the nine water utilities is inter-municipal and serves three cities, there are eleven industrial production profiles for nine cases.

³⁷ Municipal industrial profiles, itemized by sector, are taken from INEGI (2004). The US Geological Survey (undated) and the Pacific Institute’s Water Program (2007) provide overviews of industrial processes with high water reliance, such as food production, electronics, medicines/pharmaceuticals, primary metals. I score industrial economies as highly reliant on water if a) the aggregate total gross income from water reliant industries exceeds a minimum threshold and b) if the total gross income from water reliant industries composes over a significant plurality of the total gross income of the local economy.

³⁸ Additionally, analysis of metering percentages for business consumers as well as analysis of consumer debt from business in 2008 helps illustrate the measure of business compliance with reforms after the reform process. Given poor municipal record keeping prior to reforms, amount of business consumer debt is not available for the pre-reform time period. See Appendix C.

1.4.4. The Relationship between Local Business and Mayoral Support

The relationship between local politics and local business is often symbiotic in Mexico. Mayoral candidates are frequently drawn from influential members of the local business community, and in most cases influential businesspeople shape local politics by promoting candidates and their party platforms. Business leaders may see in civic sponsorship of municipal services an opportunity that could help them to later run for local office. Mayoral support for reforms is necessary because the mayor is the political boss within the municipality and either directly or indirectly controls water service provision. Business support, however, is not only important for the financial viability of the reform process, but also in order to extend the time horizon of reforms. In all cases of reform, either the mayor or local business played a leadership role, and was supported by the other actor in a coalitional relationship that allowed the reform agenda to outlast the municipal administration under which it began. Therefore, the coalition constructed between the mayor and local business serves the purpose of making reforms both politically feasible as well as financially viable in the short to medium run, and the support of the business community sustains these gains over the long-run. Table 1.5 shows the range of potential scores for the municipal reform coalition. As the figure shows, strong levels of business support and mayoral support is associated with a strong reform coalition. For clarity of presentation, only four slots are filled in, but all sixteen slots could hold possible scores for the strength of the municipal reform coalition.

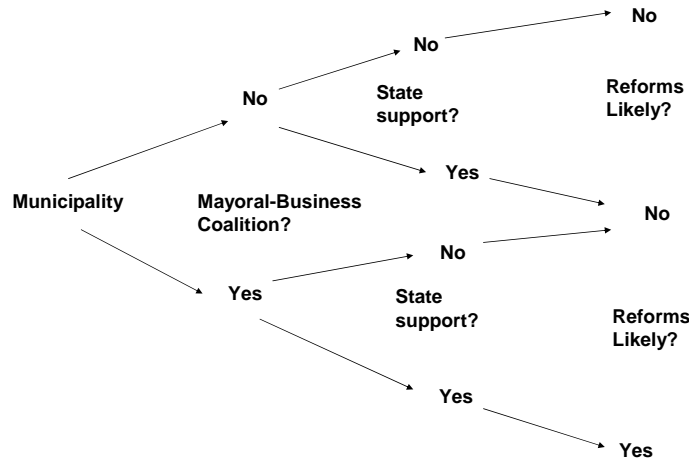
| | | Mayoral Support | | | |
|------------------|-------------|------------------------------|---------------------------------------|---------------------------------------|--------------------------------|
| | | Low | Medium Low | Medium High | High |
| Business Support | Low | Weak Reform Coalition | | | |
| | Medium Low | | Moderate/Weak Reform Coalition | | |
| | Medium High | | | Moderate/High Reform Coalition | |
| | High | | | | Strong Reform Coalition |

1.4.5. State Level Institutional Support

State level support is the second explanatory variable of the argument, becoming an important resource for municipal government once the first condition of the argument (the mayoral-business coalition). As such, the argument is sequenced; once the first condition has

been met, the second condition will become important. Figure 1.3 depicts the relationship between the first and second condition—or explanatory variables—in the argument.

Figure 1.3. Argument in Sequencing Form



Furthermore, while the strength of the mayoral-business coalition will determine whether municipal policy reforms are *adopted*, state governments are in a key position to provide important resources for reform *implementation* at the municipal level. Just like business support, state support can extend the time horizon of municipal governments because state governments can provide important tools for reform. State governments have access to more federal funding, have a greater taxing arm, include a civil service program, and have six year appointments. Support from the state government can extend the municipal policy time frame by providing resources that fill in knowledge and experience gaps for municipal bureaucrats. As such, state government can shorten the long-term planning of the reform process to make it more consistent with the shorter electoral cycle found at the municipal level.

State governments can provide support along three dimensions for water and sewerage provision: (1) creating a legal framework for municipal service provision, (2) promoting state-wide cost recovery pricing (or fiscal) policies and (3) providing technical assistance to municipal service providers. These resources often come from the state water commission, but can also come from other state level institutions, such as state congress or a treasury institute. These three institutional resources and their level of accessibility to large urban metropolitan areas are a reflection of the governor’s interest in promoting cost recovery measures in municipal water provision. If local reformers are in a state where a high degree of state level resources are available, they are in a better position, to lengthen their policy horizon and expedite the reform process. Chapter 2 of the dissertation outlines in detail how these three dimensions of support developed, to different degrees, in each of the three state governments featured in the dissertation.

In a sense, state governments in Mexico have become the “new center,” which some analysts claim has perpetuated the pattern of dependence for municipalities.³⁹ However, I

³⁹ Grindle (2007) discusses the role of state governments for Mexican municipalities.

maintain that this has also created opportunities for increased accountability and inter-governmental cooperation. The dissertation argues that if reformers are inclined towards reform and if they are located within a state with a high degree of resources, these state level resources may be an important tool for reform-minded municipalities. As such, this second component of the argument—state level support—is the more apolitical of the two explanatory variables because these state supports are conceptualized as institutional resources available to all urban metropolis within the state, rather than political bargaining between state and municipal actors over specific resources.

Table 1.6. State Level Institutional Support for Municipal Policy Reform

- | |
|---|
| <p>1. Creates Legal Framework that allows for</p> <ul style="list-style-type: none"> • prices to be based on service costs • service suspension for non-payment <p>2. Promotes State-Wide Cost Recovery (Fiscal) Policies</p> <ul style="list-style-type: none"> • Updating price structures (with indexing, cross-subsidies) • Promotes regular public publishing of prices • Promotes regular updates to prices <p>3. Provides Technical Assistance</p> <ul style="list-style-type: none"> • training or training guidelines for municipal water employees • advisory role for operational assistance • advisory role for price setting • advisory role for modernizing collection practices • materials for promoting water conservation • gathers and tracks performance indicators over time |
|---|

1.5. RESEARCH DESIGN AND ORGANIZATION OF THE DISSERTATION

This study uses Mexico as the national setting for two primary reasons: 1) the decentralization process that occurred in the 1980s and 1990s shifted the onus of operative responsibility to municipal governments (as opposed to state governments) and 2) Mexico developed a market-based approach to service delivery that did not push widely for privatization⁴⁰ but rather for the entrance of market logic in public sector service provision and policymaking. Mexico thus provides fertile ground to study municipal market-based policies promoted by the public sector.

To explain the divergent outcomes across municipal governments, I employ the subnational comparative method, which allows for the use of within country rather than cross country comparisons. The subnational comparison strengthens analytical leverage on several fronts. First, I am able to increase the number of observations of a small-N research design and simultaneously hold constant many cultural, historical and (to a more limited extent) ecological factors under study within a country that are often mismatched in cross-national research

⁴⁰ As opposed to Chile, Colombia, Argentina, Bolivia, among others, where privatizations, particularly in water services, were more widespread.

designs.⁴¹ Second, many subnational studies are based on observations on *intermediate* levels of government (state or province), rather than the *local* level (municipality, city, town). Undertaking municipal comparisons embedded within state level contexts allows for further state-level factors to be held constant among the three sets of municipal comparisons.

This study employs a *one sector, many places* research strategy that allows for the control of sources of sectoral variation, allowing greater analytical leverage on the independent variables in question: the mayoral-business coalition and state level support.⁴² Interviews with over 150 municipal, state, federal, non-governmental and business actors are supplemented with quantitative data of sectoral performance and industrial profiles across municipalities, as well as historical archival data and news source analysis. Given the technical complexity of the sector, multiple interviews with the same individual, numerous field visits to processing and treatment facilities and analysis of hydraulic conditions for each case supplement the political analysis.

The water and sanitation sector is selected for several reasons. First, water and sanitation is a principle arena where market-based approaches have been implemented by the public authorities.⁴³ Second, because of the humanitarian, social and ecological issues associated with water and sanitation provision,⁴⁴ this sector is highly visible and therefore politicized much more than other sectors with lower visibility or social importance. Given the political significance of the sector, governments throughout the developing world, and in particular Mexico, have not historically charged high prices for service, making the shift to cost recovery policies politically contentious. Indeed, few politicians would argue against modernizing service provision, but when determining how service modernization will be *financed*, an otherwise highly technical sector becomes deeply politicized. Third, reforms that increase the quantity and quality of water and sanitation are crucial in humanitarian terms, given that 1 billion people (14% of the world's population) lack access to potable water and 2.6 billion (37% of the world's population) lack access to sanitation.⁴⁵ Throughout the developing world, many people who are formally counted as receiving water and sanitation access receive poor quality water intermittently throughout the week. Finally, both water sources and sanitation reservoirs cross political boundaries (i.e., the state or municipality), making multi-tier resource management a primary characteristic of water policy. Therefore, water policy is a useful vehicle for the study of intergovernmental relations and the evolving nature of federalism, particularly after decentralization transfers.

This study employs a multi-level research strategy. Analysis of nine municipalities in Mexico is nested within analysis of three states that underwent the decentralization and market-based policy adoption process. The state level case selection is meant to be purposive, rather than a random sample, of the country. The three state governments, Mexico, Veracruz and Guanajuato, are selected from Mexico's 31 states based on their institutional and legal frameworks within the hydraulic sector. A key selection criterion for the state government cases

⁴¹ See Snyder (2001b).

⁴² Others who have employed this approach include Post (2008), Snyder (2001a), Bates (1998) and Karl (1997).

⁴³ See Fay and Morrison (2006).

⁴⁴ See Moreno-Jaimes (2007), for a discussion of the INEGI-SEDESOL survey (2000) on municipal development in Mexico, where 79% of all mayors regard potable water provision as the main priority in Mexico. I believe this would be similar throughout many developing countries.

⁴⁵ Figures taken from the UN World Water Assessment Program, http://www.unesco.org/water/wwap/facts_figures/basic_needs.shtml

is the level of policy level adoption of supporting market-based reforms, testing the hypothesis that state level support matters for municipal market-based reforms.⁴⁶ In order to test the extent to which state support impacts municipal provision, I select three cases that have a variant degree of institutional structures to support municipal governments. In selecting the three state cases, I control for the hydraulic resources available in each state. Each of the three states has varied terrain that encompasses both drought sensitive areas and ones with more abundant water supply. I exclude the northern states, with their desert conditions, in order to maintain comparability across cases.⁴⁷ Each of the three states is politically and economically representative of different regions within Mexico: Guanajuato is representative of northern states such as Nuevo Leon Baja California Norte and Sonora; Mexico State is representative of many central states such Puebla and Hidalgo; and Veracruz is similar to southern states such as Oaxaca, Chiapas, Guerrero. The three states selected are not minor, outlier cases, but rather representative of three regional patterns within the country (North, South, Center) as well as important economic and demographic hubs.⁴⁸ This multi-level research strategy allows me to evaluate the role of state-municipal relationships in municipal service provision, although the primary comparative analysis is centered on the observed variation across the nine municipal cases.

The nine municipal cases chosen—three within each state government—are all large urban metropolitan centers, controlling for size of population and policy scope since these policies were directed towards large urban centers. These municipalities have mostly comparable socio-economic bases, and where they vary socio-economic base is not correlated with the outcome in question (see Appendix D). Comparing municipal units increases the number of observations while holding other national level factors constant. For example, policy scope, institutional configurations and sectoral specific characteristics, the party system, cultural, and historical legacies, all are factors that would vary widely across national contexts but are held more constant within subnational comparisons. My case selection strategy also allows me to separate the effect of partisanship and reform coalitions because I am able to examine municipal PAN politics and policymaking in different socio-economic environments. Such a design allows for a controlled study of municipal policymaking, and provides a study of how local policy implementation differs from national level designs.

The chapters of the dissertation are organized as follows. Following this introductory chapter, Chapter 2 presents a historical overview of 20th century urban water and sanitation policy in Mexico, as seen through the lens of the Mexican political system and important political and economic transformations of the latter half of the century. Chapter 3 presents the analysis of the three state governments, describing first the historical origins of the support structures developed during the protracted process of decentralization in Mexico, and then comparing the three dimensions of institutional support (legal, fiscal and technical) that developed within each of the three state cases. This chapter outlines why different levels of state

⁴⁶ See Comisión Nacional del Agua y Banco Mundial (2004).

⁴⁷ The relative availability of water is an important factor to be held constant. In the northern Mexico states, water availability is extremely low, which has been correlated with a higher degree of water conservation efforts for some observers. Therefore, the cases selected omit the Northern states because generally speaking water availability is extremely low. While Mexico State and Guanajuato have comparable amounts of water availability, Veracruz generally has more water availability, although does experience drought in the south.

⁴⁸ Mexico State, Veracruz and Guanajuato are leaders in industry, agriculture, mining and leather production, respectively, and together account for over 17% of Mexico's GDP (INEGI 2005).

level support for municipal provision exist for each of the three state cases and what shape they take. Chapter 4 examines the three municipal cases in Guanajuato, keeping constant the state level support variable (which is high) and explaining variation in mayoral-business coalitions across the municipalities of Leon, Irapuato and Celaya. Chapter 5 analyzes the three municipal cases within Mexico State, keeping constant the state level support variable for all three cases (which is medium) and explaining variation in mayoral-business coalitions across the three municipal cases of Naucalpan, Toluca and Nezahualcoyotl. Chapter 6 evaluates the three municipal cases within the state of Veracruz, keeping constant the state level support variable (which is low), and explaining variation in mayoral-business coalitions across the three municipal cases of Jalapa, Veracruz City and Poza Rica. Finally, Chapter 7 concludes by identifying scope conditions of the study as well as theoretical and empirical lessons that can be derived from the study of Mexico's urban water and sanitation sector.

Chapter Two: Origins and Evolution of Urban Water Policy in Mexico

2.1. INTRODUCTION

The importance of first irrigated agriculture, and later the expansion of urbanization and industrial production, made hydraulic policymaking a strategically important area for the Mexican federal government by the mid twentieth century. This was a policymaking arena that was shaped by the political and economic climate under which it unfolded. For decades, the federal government centrally managed and heavily subsidized urban water and sanitation provision, seeing federally provided water service as an important social and health policy, as well as an important material benefit to be provided to constituents of the ruling party (the PRI). This chapter examines how the decentralization initiative in the sector that began in the 1980s was greatly affected by decades of centralized authority, federal subsidies and one-party rule. The historical overview of subsidized water provision in Mexico also serves to explain how the low-level equilibrium between low water prices and low quality service emerged, and became the status quo by the end of the 20th century. When urban water and sanitation policy began to emphasize local operation and administration, and fiscally self-sufficient utilities financed by consumer payment, many municipalities found it difficult to move past the legacies that nearly a century of centralized and federalized service provision had endowed.

The political pact between the PRI and its constituents was dependent on patronage and subsidized services during a period of statist economic development and ISI. In contrast, the decentralization efforts that occurred in the 1980s and 1990s were based on the principles in market-oriented policies of a smaller, more efficient government. During this shift in policymaking, the federal government began to emphasize that municipal water utilities implement market-based strategies in service provision, such as cost recovery, service suspension for non-payment, and elimination of clandestine connections. This chapter argues that the shift from the ISI era to market reforms has been a paradigm shift in urban water management that has reconfigured inter-tier governmental relations and underscored the difficulty of building local governance capacity, as well as culture of water payment, after years of policies that stymied their development.

This chapter is divided into three periods: 1) centralization and its institutional legacies (1824-1976), 2) decentralization by abandonment (1977-1988) and 3) decentralization by design (1989-2010). Each period treats two major categories: the first is an overview of Mexico's political and economic climate during the period in question, and the second is an examination of how the political and economic context shaped the development of the urban water and sanitation sector. In this manner, I explain the origins and evolution of Mexico's urban water policymaking by placing it into the broader political and economic challenges the country faced in the twentieth century.

2.2. CENTRALIZATION AND ITS INSTITUTIONAL LEGACIES (1824-1978)

2.2.1. A Historical Overview of Mexican Federalism (1824-1946)

Historically, there has been a substantial gap between the structure of the Mexican government in theory and its functions in practice. Formally, the Mexican government has been federalist since its inception, with three branches of government (executive, legislative and judicial), checks and balances, and with a three-tiered federal system consisting of federal, state and municipal governments. However, until recently, substantive federalism in Mexico was extremely limited. In practice, Mexican federalism developed into its own brand, *a la Mexicana*, a system with extreme concentration of powers in the center despite its formal federal architecture (Rodriguez 1997). The construction of Mexican federalism dates back to its colonial origins.

While the Mexican territory has been ruled firmly from the center since as far back as the height of the Aztec empire, it was the colonist tradition of central control that provided the basic framework for future organization of Mexican federalism (Rodriguez 1997, 18; Benson 1958). As Nettie Lee Benson observed, “federalism...was adopted in 1823 because it was the only possible way to unite and solidify a country which, under the influence of a Spanish institution, had broken up into independent provinces that were verging on becoming independent states or nations (1958).”⁴⁹ During this period, each of the twenty two provinces was considered to be an independent and autonomous political division with a political chief, responsible to the Cortes⁵⁰ in Spain (Benson 1958, 92). The Cortes, realizing that the American provinces resented previous Bourbon efforts towards centralization, created two new home rule institutions: the provincial deputation, which consisted of locally elected member an appointed executive, and the constitutional *ayuntamiento*, which were new local governing bodies presided over by popularly elected official (Rodriguez 1994, 4). As Mexico transitioned into forming democratic institutions post independence, the sub-national divisions adopted during the Cortes period provided an important foundation.

While the 1812 Constitution⁵¹ formally established representative government at three levels: the empire, the province and the municipality;⁵² internal conflict and war destabilized the nation throughout the 19th century. Damage to the nation’s infrastructure, agriculture and economy caused by the wars of independence, as well as the political rifts between variant interests and regional powers, led to a period of political and constitutional crisis and prolonged instability that left Mexico virtually ungovernable.

⁴⁹ As cited in Rodriguez (1997), see the original text in Benson (1958).

⁵⁰ To read more about the Cortes, see Benson (1966).

⁵¹ The 1812 Mexican constitution provided the legal foundation of what was to become the 1824 federal republic.

⁵² Furthermore, the constitution allowed cities and towns with a thousand or more citizens to form *ayuntamientos* and expanded the electorate dramatically, see Rodriguez (1994, 4).

The country was riven by conflicts: the divisions between Mexico City and the regions; between the legislature and the executive, between regalists and canonists; between partisans of a strong national government and states' rights; and between order and popular democracy. (Rodriguez 1994, 9)

During the first fifty years as an independent nation, Mexico was unable to found stable institutions of political rule, leaving the traditional oligarchy (i.e., the church and landed elites) substantially weakened (Collier and Collier 2002, 114). The federal republic possessed a weak executive and a powerful legislature, and the national government lacked authority vis-à-vis the states (Rodriguez 1994, 7). During Benito Juárez's presidency (1867-1872), the struggle between the executive and legislative became stronger (Rodriguez 1997, 19). This period of economic decline and political chaos convinced some that Mexico needed a more efficient and more centralized political system (Rodriguez 1994, 9).

When Porfirio Díaz (1877-1911) came to power, he squashed the infighting and reordered the Mexican political system through executive supremacy over legislative and judicial branches, as well as over the states, definitively beginning what would become a long held period of *presidencialismo* in the country. The growth of the oil economy, foreign expropriations and rapid industrialization swelled the nation's coffers under the Díaz regime. Díaz gained widespread political support by extending the country's newly acquired wealth to local regional bosses—many bosses were content to exchange local autonomy for a share of federal revenues (Rodriguez 1997, 19). Although the Mexican nation had been born under a federalist structure and included a role for local autonomy, the *Pax Porfiriano* sealed a pact between regional bosses/oligarchic interests and the center. The Díaz dictatorship exchanged economic stability for political support, ensuring the rule of a highly centralized government that used caudillo politics to legitimate extra-constitutional powers and a hyper-presidentialist rule.

The oligarchic state collapsed with the 1910 Mexican Revolution that ushered in nearly a decade of civil war. In founding the new activist state in the aftermath of the Mexican Revolution, the 1917 constitution “was the world's first example of “social constitutionalism,” predating both the Russian and the Weimar constitutions, and along with them it became an important international model” (Collier and Collier 2002, 103). The new constitution inscribed the gains of the Mexican Revolution by promoting a liberal project (of individual rights, effective suffrage, rule of law), a social welfare agenda and a nationalist-oriented state that defended national patrimony (Bailey 1988, 6). The new agenda of the activist Mexican state provided the legitimacy needed to take on a broad range of reforms, under the auspices of the central government. The following decades would see an expansion of federal authority in most aspects of Mexican society.

Under Lázaro Cardenas (1934-1940), Mexico launched institutional and economic development plans that concentrated technical capacity, progressive ideas and fiscal resources within the federal government. National corporatist organizations represented major constituencies of the Revolution, and old elites were disbanded. “The Revolution removed or weakened such important actors as the Catholic Church and large landowners, and created a new order led by new elites and based on a state ideology of nationalism, liberalism and development (Rodriguez 1994, 9). Workers, peasants, popular sectors and the military became part of the political pact that would allow the PRI to maintain political hegemony until 2000. Cardenas, a master of statecraft, used populist reforms such as land distribution, state protection of labor, and

nationalization of petroleum to strengthen the central government, and outline its intent towards greater activism and protection of social welfare (Bailey 1988, 14). Collier argues that two features of the Mexican regime are especially important: first, the nature of one-party dominance which was founded on an inclusionary regime that claimed to represent the whole. Second, the central support of labor for the state and the institutionalization of the state-labor alliance that provided the PRI regime with a wide number of political resources (Collier 1992, 39).

[The official party] did not serve as a base of legislative power or as an organization for fighting competitive elections, but rather as a source of services for an increasingly centralized state with a weak legislature: it was a mechanism of executive power, interest intermediation for the state and plebiscitary legitimation. (Collier 1992, 39)

Future PRI presidencies further reinforced the centralization and bureaucratization begun during the Cardenas administration.

In sum, Mexican federalism developed into a political system that was highly controlled by the center, to the exclusion of subnational authority or development of local capacity for governance despite the constitutional overtures to the *municipio libre*. Subsequent laws and constitutional amendments would continue to acknowledge Mexico as a federalist system while simultaneously undermining the responsibilities and resources of lower levels of government⁵³ (Grindle 2007, 28). As Garrido notes, the president has not only constitutionally prescribed authority, but “metaconstitutional” powers—the president may act as a constituent power with the authority to amend the Constitution, as chief legislator, establish himself as the ultimate authority in electoral matters, assume jurisdiction in judicial matters, and to remove legislators, governors and municipal presidents (1989, 422-4). Victoria Rodriguez notes that this combination of constitutional and metaconstitutional powers has made the Mexican president one of the most powerful presidents of any country (1997, 20). By the 1980s, federalism *a la Mexicana* had come to mean a particularly potent form of *presidencialismo* based on a rhetorical and ideological claim of the PRI to be inclusionary and participatory across three tiers of government.

2.2.2. Centralization and Development: Evolution of Hydraulic Policy (1946-1976)

Urban water policy developed in Mexico in the context of a federalist, yet highly centralized political system. Throughout the 20th century, the national government concentrated authority for local services such as road maintenance, electrification projects, and water and sanitation provision, so much so that by “the 1970s, it was practically impossible to find a municipality in Mexico where the presence of the federal government was not evident in some degree or another” (Rodriguez 1997, 35). While this dissertation is primarily concerned with urban water use, a brief overview of Mexican hydraulic policy (including irrigated agriculture and industrial use) sets the backdrop for the development of urban water and sanitation networks and their corresponding financing schemes. This section makes the following three claims. First, the development of irrigated agriculture was fundamental to Mexico’s economic growth and therefore water management was an important development tool for the nation. Second, the

⁵³ For example, see a discussion of the fiscal centralizing policies (such as the 1947 national sales tax) that were used by the federal government as an important instrument of consolidating authoritarian rule in Courchene et al (2000).

PRI's strategy of exchanging material benefits (such as reduced water prices) for political support contributed to the public perception that water delivery should be subsidized by the government. Third, excessive centralization stymied local autonomy and the development of capable local management of water services. The two recurring themes of centralized control and the political pact that led to subsidization of water delivery are paramount to explaining the institutional legacies of centralization in urban water delivery.

The 1917 constitution established for the first time that water was to be protected as a key element of the national patrimony, effectively creating a legal foundation for the use of water as a tool for economic development. The progressive constitution redefined ownership and jurisdiction of water rights after decades of legally ambiguous and politically contentious fights over water use under the Diaz regime. Rather than allocate public waters for public use, the *Porfiriato* had distributed concessions to private interests and helped consolidate a private monopoly on federal waters (Aboites 1998, 82-83). The 1917 constitution broke sharply with the favoring of private interests, establishing instead that land and water was the sole property of the nation, transferable and sellable only through concessions granted by the federal government. Article 27 privileged public interest over private property, demarcating the right of the nation to regulate the exploitation of natural resources, significantly under the regulatory auspices of the federal government. Breaking in important ways with the 1857 constitution, private ownership of lands and water was now a privilege granted by the federal government, and relegated under a new political ideology of public ownership of national lands and water. In a largely agricultural society that would launch into state-led industrialization by the 1950s, water would be the property of the nation and play a key role in Mexico's development project.

2.2.3. The Ministry of Hydraulic Resources

By the 1940s, Mexico had launched full force on the path of industrialization under Miguel Aleman's presidency (1946-52). With urban expansion and industrialization came the need for the development of water use for urban centers, industry and expansion of irrigated agriculture. In order to manage a wider range of water uses in an integrated manner, a new federal ministry was created, the Ministry of Hydraulic Resources (Secretaría de Recursos Hidráulicos, SRH) in 1946.⁵⁴ The creation of a hydraulic cabinet level position was groundbreaking—it was the first cabinet-level position in a Western government created to manage hydraulic resources. To underscore this point, the Ministry of Hydraulic Resources was given the second largest budget of any federal agency in Mexico (Whiteford and Melville 2002, 16). Mexico's increasing leadership in hydraulic policy was underscored by the group of world renowned Mexican

⁵⁴ The precursor to the Ministry of Hydraulic Resources was the National Irrigation Commission (Comisión Nacional de Irrigación, CNI), founded in 1926 and oriented towards developing agricultural production. The CNI was charged with building all irrigation infrastructures during a time where developing irrigation technologies and hydroelectricity was paramount to Mexico's economic development. Because the CNI played such a pivotal role in Mexico's development, a great deal of fiscal resource was concentrated in the commission. The CNI was also the first hydraulic commission in Mexico that benefited from the aid of U.S. experts, establishing an educated and experienced group of Mexican hydraulic engineers. The concentration of resources, one party rule and technocratic expertise built a bureaucratic behemoth within the federal government and begun a tradition of highly centralized and hierarchically administered hydraulic policy in Mexico. See Secretaría de Agricultura y Recursos Hidráulicos (1988), Whiteford and Melville (2002), and Rodriguez (2008).

engineers. The historian Luis Aboites argues that the vision of these engineers⁵⁵ was composed largely of 1) a pessimistic diagnosis of the territorial characteristics throughout the country that posed important obstacles for hydraulic development, 2) optimism with regards to the potential of engineering and technical development to confront these obstacles, 3) a clear political agenda that entailed utilizing the technical expertise of the engineer corps, and 4) a conviction that investing in hydraulic development would make an important contribution to national economic development (Aboites 2004, 91-92). The significance of elevating hydraulic policymaking to the ministerial level reflected the importance of irrigated agriculture for Mexico’s economic development.

The role of hydraulic experts was particularly pronounced in the development of nine river basin commissions established under the Ministry of Hydraulic Resources—the federal government invested heavily in these commissions because developing agricultural and hydroelectric resources promised economic growth.⁵⁶ Additionally, because river basins cross state boundaries, these commissions were seen as an important tool for cross-regional policymaking (Barkin and King 1979, 237). The subsequent period of hydraulic construction was modeled after the Tennessee Valley Authority in the United States, which further sparked the development of a professional, highly educated and experienced technical cadre of engineers and experts in hydraulic policy (interview with Barkin, 2007; interview with Melville, 2008). The development of an internationally lauded group of technical experts at the national level further established the authority of the central government over local leaders who were not considered to have the same level of technical training necessary to manage dams and irrigation systems.⁵⁷ The role of technical capacity and expertise as a means to consolidate power at the center will later be discussed with respect to local water and sanitation delivery.

In addition to managing irrigated agricultural infrastructure, the Ministry of Hydraulic Resources was also charged with addressing the dire state of urban water and sanitation systems. From 1950 to 2005, the Mexican population has quadrupled, and shifted from predominantly rural (57.4%) to largely urban (76.5%) (Comisión Nacional del Agua 2007, 11).

| Year | 1950 | 1955 | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Rural | 14.80 | 17.23 | 18.58 | 19.93 | 21.24 | 22.55 | 22.93 | 23.30 | 23.73 | 24.16 | 24.71 | 24.28 |
| Urban | 11.02 | 17.76 | 23.10 | 28.43 | 36.45 | 44.47 | 51.34 | 58.21 | 62.73 | 67.25 | 72.98 | 79.20 |
| Total | 25.82 | 34.99 | 41.68 | 48.36 | 57.69 | 67.02 | 74.27 | 81.51 | 86.46 | 91.41 | 97.69 | 103.48 |

*Note: Rural populations refer to localities with less than 2,500 inhabitants, and urban populations refer to localities with greater than 2,500 inhabitants.

Source: Comisión Nacional del Agua (2007, 11).

⁵⁵ Many of the same engineers from the CNI went to work for the Ministry of Hydraulic Resources under the same rectorship of Engineer Adolfo Orive Alba. Therefore, the transition between one organization to another was a smooth one, with many of the same talent, ideas and policy objectives. See Aboites (2004, 91).

⁵⁶ Nine regional river basin commissions were created in order to develop and manage construction of irrigation projects, flood control and hydro-electric investment projects. The commissions were built on the Papaloapan, Tepalcatepec y Balsas, Grijalva, Lerma-Chapala-Santiago, and El Fuerte river systems, located in central Mexico and on the Gulf and Pacific coasts. See Barkin and King (1979, 83).

⁵⁷ Furthermore, the amount of fiscal budget that passed through the river basin commissions made the directors even more powerful than locally elected leaders (interview with Barkin, 2007).

Although Mexican cities were growing at an accelerated rate, the development of basic services such as water and sanitation were not keeping pace with population growth. For example, one study cites 51% potable water coverage in Mexico's urban centers in 1960 (Gilbert 1998, 105).

To address the growing underdevelopment of adequate water and sanitation networks with respect to population growth, in 1948 the Ministry of Hydraulic Resources designated an office charged specifically with building and administering potable water and sanitation systems throughout Mexico, the General Office of Potable Water and Sanitation (Dirección General de Agua Potable y Alcantarillado).⁵⁸

2.2.4. Subsidies and Political Patronage: The Rise of Federal Water Juntas

From 1948 to 1976, the Ministry of Hydraulic Resources oversaw the construction of water and sanitation networks throughout Mexico's urban centers and capital cities, through the creation of the first urban water and sanitation utilities in Mexico, the federal potable water and sanitation juntas (*juntas federales de agua potable y alcantarillado*).⁵⁹ These federal juntas were funded and administered by federal agents operating in local offices throughout the country, but their decision-making was subject to the oversight of bureaucrats within the Ministry of Hydraulic Resources in Mexico City.⁶⁰ Although decision-making in practice was dominated by federal agents, the juntas were designed with an administrative board, where the municipality, state government, federal government and civic society were represented (interview with Rodríguez Briceño, 2008). This institutional design created the appearance of democratic participation and local influence in a process that was overwhelmingly financed and administered in a top-down fashion by the center. Furthermore, federal juntas were staffed by the same engineer corps that had come to dominance in hydraulic policymaking beginning in the 1930s and 1940s. These were for the most part educated and trained under standards exacted by the Ministry of Hydraulic Resources, and the municipal workforce was generally seen as lacking the sufficient technical training necessary to administer and operate the water and sanitation systems further legitimizing centralized service delivery (2008, 43).

The financing schemes used by the Ministry of Hydraulic Resources further disempowered local governments. Federal juntas typically distinguish between funds for infrastructure construction and funds for daily operation and maintenance, the latter was theoretically generated from consumer payment. In terms of financing infrastructure works, the

⁵⁸ This office is born in 1946 as an office within the construction offices of the Ministry of Hydraulic Resources, then in the 1960s rises to be a Directive office, under the Office of Potable Water and Sanitation (Jefatura de Agua Potable y Alcantarillado), and finally in 1976 becoming the General Division of Potable Water and Sanitation Operations (Dirección General de Operación de Sistemas de Agua Potable y Alcantarillado).

⁵⁹ In addition to the federal juntas created for large urban areas and capital cities, the Ministry of Hydraulic Resources also created "potable water and sanitation committees" (*comités municipales de agua potable y alcantarillado*) in non-capital cities with smaller populations, and "administrative offices" (*administraciones directas*) where there was no local representation and the Ministry of Hydraulic Resources administered the service directly.

⁶⁰ During this period of centralized administration of water and sanitation delivery, there were exceptions to the rule. Some important urban centers, typically found in the northeastern and northern Mexico, took control of their water and sanitation system at either a municipal or state level. Monterrey is a well known example, see Bennett (1995).

Federal Law of Sanitation⁶¹ of 1948 stated that all water and sanitation works constructed either partially or entirely using federal funds would remain under the Ministry of Hydraulic Resource's administration, only "transferring said [infrastructure] works to the corresponding local authority once the federal government has recuperated in full all inversions applied to said works or when all corresponding [debt] obligations are extinguished" (Rodriguez Briceño 2008, 43).⁶² This financial arrangement demonstrates the centralizing zeal of the federal government during this time. The Law of Cooperation dictated that if federal juntas were ever financially healthy, the federal government would lose control of them and they would be turned over to be administered by the municipality in which they were located. Although most federal juntas operated in red numbers, one observer notes that financially healthy juntas were at times made to undertake expensive and unnecessary construction projects so as to remain indebted to, and under the auspices of, the federal government (interview with Rodriguez Briceño, 2008).

Another important aspect of financing schemes is the water price structure,⁶³ which was heavily influenced by political considerations. The Ministry of Hydraulic Resources authorized water prices after a negotiation process with local authorities who were often little interested in charging real prices for service delivery (Rodriguez Briceño 2008, 45). The PRI was able to remain a hegemonic party for 80 years in part due to their exchange of material benefits, of which water delivery was an important one, for political support. "Patronage...was the glue that kept the political system together. Those who were loyal had their regions provided with irrigation works, roads, schools, and agricultural credit" (Teichman 1988, 27). Despite the prohibition on immediate re-election and the lack of competitive elections, local politicians were interested in remaining popular, and free of conflict with the ruling party's constituents. Local authorities were uninterested in charging real prices due to the high political costs entailed, and those who did charge more than symbolic prices rarely enforced them.

[Historically], fees collected for the provision of water seldom cover[ed] the maintenance costs of the water supply system, thereby turning into a major expense rather than a source of income...there is the critical issue of a lack of political will to institute an effective system of charging for fees for providing services. In many localities, these services have traditionally been subsidized by higher levels of government, and people are simply not accustomed to paying for the services they receive...at least until non-PRI municipal presidents were elected, very few municipal presidents were prepared to buck the traditional orthodoxy of power relations and tackle the issue...the reason is obvious: it was felt that the political cost for the PRI would be too high. (Rodriguez 1997, 120)

Patronage took the form of both charging heavily subsidized prices for water as well as not enforcing payment of services.

⁶¹ Translated into Ley Federal de Ingeniería Sanitaria (1948).

⁶² Later in 1956, a more complete law was passed, the "Law of Cooperation for the Provision of Potable Water to Municipalities" (Ley de Cooperación para Dotación de Agua Potable a Municipios) that provided federal fiscal support of local infrastructure projects for half of the cost of the public works in localities with under 30,000 inhabitants and 1/3 of the cost for urban areas with over 30,000 inhabitants (Article 1) in exchange for technical and administrative management remaining with the federal government (Article 4).

⁶³ While a few federal juntas did provide sanitation services, sanitation coverage during this time was very limited, therefore the primary focus of federal water juntas before the 1970s was water service.

| Population | Price per m3 (\$MXP) |
|----------------|----------------------|
| >2,500 | \$0.68 |
| 2,500-5,000 | \$0.73 |
| 5,000-20,000 | \$0.67 |
| 20,000-50,000 | \$0.71 |
| 50,000-100,000 | \$0.68 |
| >100,000 | \$0.74 |

Source: Secretaría de Recursos Hidráulicos (1973).

Table 2.2 shows that average water prices per cubic meter ranged from \$MXP 0.68 to \$MXP 0.74, but official figures indicate that the average cost of delivering service ranged from \$MXP 1.50 to \$MXP 1.75 per cubic meter (Secretaría de Recursos Hidráulicos 1973, 208). The Ministry of Hydraulic Resources was able to easily dictate the behavior of local politicians and water delivery operatives throughout the country because they all belonged to the same political party that was run out of Mexico City.

Decades of subsidized water provision contributed to a wide spread societal expectation that piped water should be heavily subsidized by the government. This societal expectation became so deeply engrained in Mexican society that it would later thwart efforts to finance water and sanitation networks through the collection of user fees, or cost recovery policies, at the local level.

The root of all of this was that...before, when the federal government provided [water] service, they also had it subsidized. They saw it as a primary necessity...overall with regards to health...the family that had water in their home...had less health problems. Therefore, water was extremely subsidized. When water service is transferred...the municipalities were the ones that resented...the new policy of charging for water...because not charging for water [had become] deeply rooted in [Mexican] culture. (interview with Millan, 2008)

As twentieth century industrialization and urban expansion put an increasing strain on the quantity and quality of water resources in Mexico, the expenses associated with providing piped service increased. However, rising service costs were masked by the PRI patronage system that found it politically beneficial to subsidize this service, and an expanding economy that cooperated with this patronage agenda until the fiscal crisis of the late 1970s. During the era of centralized and subsidized management, there was also an emphasis on constructing public works rather than repairing and maintaining the existing networks. Although in many cases an emphasis on network construction was understandable given the need for new networks in the 1950s and 1960s, creating highly visible public works was more politically beneficial than investing in less visible underground network repairs. The emphasis of construction over maintenance was in many cases another example of the politicization of urban water management under the PRI. The PRI patronage system was legitimated further by the symbolic promise of collectivism and national ownership that stemmed from the gains of the Mexican Revolution, a rhetorical device on which the PRI depended, in particular in areas of national patrimony, of which water was an important example.

2.2.5. The End of an Era: The Dismantling of the Ministry of Hydraulic Resources

As Mexico's urban expansion increased significantly in the 1960s and 1970s, so did the inability for the Ministry of Hydraulic Resources to maintain acceptable service standards and respond to numerous requests throughout its 1,000 systems (Pineda Pablos and Salazar Adams 2008: 72). Years of federal water and sanitation subsidization reinforced a culture of non-payment, one which became a serious financial burden for the government by 1976.

When new connections are installed, the corresponding payment is not always collected. In many cases more hours of service delivery is demanded, but [customers] will not allow service to be based on metered consumption...[service providers] respond to requests for good quality water, continuous service with adequate pressure, but almost always [customers] want service to be sustained based on antiquated prices that do not permit the water and sanitation system to develop and improve [service]. (Secretaría de Agricultura y Recursos Hidráulicos 1976, 291)

By 1976, the period of large hydraulic infrastructure that fueled an era of economic expansion was drawing to a close. In urban sectors, increased population growth, dwindling federal resources and the strain of centralized control took its toll on the fiscal, physical and administrative viability of water and sanitation networks. The federal government responded by transferring the potable water and sanitation responsibilities of the Ministry of Hydraulic Resources to a new ministry that was specifically designated to develop urban potable water systems.⁶⁴

The period of the Ministry of Hydraulic Resources was an important one for Mexican economic development, where large scale hydraulic work required the type of economic investment that only the federal government could provide. Also, because many hydraulic works crossed state and municipal lines, the federal government was equipped with several organizational resources (e.g., the River Basin Commissions) that allowed them to address cross-regional development issues that would not have been easily addressed by a subnational government. Nevertheless, influenced by burgeoning clamors for democratic opening, the period from 1970 to 1982 can be characterized as a PRI focus on administrative reform and “deconcentrating a limited sphere of decision making in order to restore confidence in government and one-party rule” (Graham and Rowland 2008, 70). By the 1970s, the PRI's centralized grip on the policymaking arena began to loosen, and it was during this period that the Ministry of Hydraulic Resources was dismantled.

What followed was a period of transition in hydraulic policy as the focus on hydraulic development moved to expanding potable water and sanitation systems over the once ubiquitous need to develop irrigated agriculture. As Mexico moved from an era of state-led development to economic crisis, the country's focus was on crisis management with a new set of solutions that began to dismantle some of the long-held centralist traditions across many sectors including water management.

⁶⁴ In 1976, the federal government created the Secretaría de Recursos Hidraulicos y Obras Públicas (SAHOP), and retained some old hydraulic construction functions with a newly formed agricultural and hydraulic ministry, the Secretaria de Agricultura y Recursos Hidraulicos, (SARH).

2.3. DECENTRALIZATION BY DEFAULT (1977-1988)

2.3.1. Economic Crisis, Market Reforms and Technocratic Elites

By the 1970s, Mexico's development strategy of Import Substitution Industrialization (ISI) that had once generated a period of stabilizing development⁶⁵ had devolved into economic stagnation. The petroleum export strategy developed during the López Portillo administration (1976-1982) provided temporary economic relief as Mexico benefited from the rise in petroleum prices, the excess liquidity of international capital markets, and the lowered interest rates and credit availability generated from recycled petroleum dollars as a result of an increase in petroleum prices (Teichman 1988, 112). But because the government had been financing its expenditures through international borrowing due to its inability to implement basic tax reform, by 1981 the total external debt was \$19 billion, half of which was short term debt (Teichman 1988, 113). By the end of 1982, triggered by sudden shifts in interest rates, Mexico faced its most severe economic crisis since the Great Depression. The country's foreign debt neared \$84 billion, its inflation rate was over 100% and its foreign exchange reserves were almost exhausted. In severe debt and without a viable strategy to increase state revenues after tax reform and petroleum export strategies had failed, Mexico signed a loan agreement with the IMF in 1982 and committed the country to a strict austerity program.

President Miguel de la Madrid (1982-1988) introduced a series of austerity measures which formed part of a larger "neoliberal," or market reforms package: encouraging foreign investment, widespread privatizations of state run industries, reduction of tariffs and entry into the General Agreement on Tariffs and Trade (GATT) in 1986. These austerity measures and macroeconomic policies were accompanied with a new managerial approach to government and policymaking. The economic opening created a new set of political winners: domestic and international investors more involved in the international economy than previous nationally-oriented business men of the ISI era. Traditional PRI constituencies were threatened as the old style of Mexican politics—spoils and favoritism—seemed to be replaced by a new emphasis on efficiency, entrepreneurship and new management techniques. The federal government administration and party machine that had ruled since the 1930s, once termed a "political bureaucracy," was replaced by an emphasis on technocratic policymaking (Bailey 1988, 61).

Whereas once political leadership had been recruited largely from the public bureaucracy, rising to their positions through party ranks, beginning in the mid-1960s, technocrats (*técnicos*) became prominent in Mexican politics, particularly in upper tier management positions (Smith 1986, 102-6). John Bailey notes that technocrats began to threaten the extensive alliances and rewards that held the centralized bureaucracy together, because "the president's general and specific control over career advancement in party and government constitutes the real motor of centralization" (1988, 33). However, the de la Madrid administration ushered in a new brand of *técnico*, very much like the president himself: foreign trained, interested in making government

⁶⁵ "Stabilizing development" was a policy implemented from 1958-1970, that sought economic growth with price stability. This economic strategy was the second phase of ISI, after the easy import-substitution stage (of light consumer goods) had run its course, Mexico hoped to make the transition to import substitute in intermediate and capital goods. This marked a substantial shift in the government's public investment priorities, which began to emphasize transportation and industry and neglect agriculture. See Teichman (1988, 37).

more efficient and responsive, and convinced that modernizing the public sector involved making it leaner, more cost-effective and more market oriented, as embodied in a public reform agenda commonly known as “New Public Management,” or NPM.⁶⁶ While highly educated, the new *técnicos* were criticized for being politically inexperienced, foreign trained and therefore espousing new management techniques not appropriate for the Mexican context, from upper echelons of society and therefore out of touch with common people, and perhaps most important, undeserving of rapid political upward mobility given their lack of apprenticeship in the party (Bailey 1988, 34). The rise of the technocrat during this period divided intergovernmental authority, pitting the PRI politicians against the new technocrats. The technocratic market-oriented NPM agenda called for a thinning of government and was at odds with the PRI’s traditional populist form of governance that depended on patronage, a bloated public sector and populist rhetoric. In many ways, the technocrat surge within the PRI undermined the PRI’s political base and challenged its hegemony.

2.3.2. Decentralization by Abandonment: Municipalizing Urban Water Delivery

This period of economic crises placed a substantive stress on Mexico’s political system and reconfigured the resources available to the PRI. The mythology of social welfare protection and competitive democracy had begun to show cracks decades earlier,⁶⁷ but by the 1980s, “the façade of Mexican democracy had deteriorated so badly that the entire political system was in dire need of a facelift” (Rodriguez 1997, 47). After years of centralized administration that had created a bureaucratic behemoth, decentralization was seen as an attractive policy option that would kill several birds with one stone. First, administrative and fiscal decentralization would “off load” fiscal burdens to lower levels of government. Second, international financial institutions (IFIs), such as the World Bank and the Inter-American Development Bank (IADB), became advocates of decentralization in the 1980s. Although officially decentralization measures occurred for domestic development reasons, World Bank assistance loans demonstrate a close relationship between adopting decentralizing policies and receiving IFI aid (Grindle 2007, 30). Third, in lieu of a substantive democratic opening, decentralization was seen as one way to attempt to strengthen the dwindling legitimacy of the PRI government because it was associated with greater democratic representation and participation at the local level. Fourth, some have speculated that municipal reform was at least in part undertaken so as to strengthen the PRI’s weakened hegemony by offering the PRI the possibility of becoming involved in local politics, potentially regaining the political ground it had lost throughout the crisis (Rodriguez 1997, 45). Finally, the federal government stressed that decentralization would help strengthen local governance capacity. Therefore, decentralization promised a host of improvements for democratic quality, fiscal health, strengthening the ruling party’s political power, and local governance capacity.

⁶⁶ New public management was a public management philosophy used by governments beginning in the 1980s in order to modernize the public sector. NPM emphasizes a market orientation in the public sector, which would have the effect of making government more efficient, leaner and reduce fiscal waste associated with over bloated bureaucracies. The NPM strategy was promoted in many developing country contexts, largely by IFIs, with questionable results. See Boston et al (1996), and the World Bank’s “The New Public Management and its Legacy,” http://www.mh-lectures.co.uk/npm_2.htm.

⁶⁷ The pivotal 1968 student protest and the violent suppression by the PRI, is widely recognized as having sparked an opposition to one-party rule that would later be consolidated by the 1988 presidential election where the PRI nearly lost the election through blatant fraud against Cuauhtémoc Cardenas, the opposition leader of the PRD.

The process of decentralizing water and sanitation services to the municipalities began in 1980, when President López Portillo issued a presidential decree ordering the federal government to begin to transfer the administration and operation of water service to states and municipal governments.⁶⁸ Although the 1983 constitutional amendment was intended to strengthen municipal autonomy, the changes to Article 115 left the municipalities dependent on state governments. Broadly speaking, state governments were given the power to approve and amend local budget proposals, and state legislatures were given the right to remove elected officials and local councils if their actions were deemed to be illegal (Grindle 2007, 29). In terms of the potable water sector, the transfer of potable water and sanitation services was initially conceived as a two-step process: first, transfer service responsibility to state governments, who were seen as more capable of administering service given their greater fiscal and administrative resources. Second, states may transfer responsibility of service provision to those municipalities who were equipped to take on the task of service provision. As Chapter 3 discusses, states throughout the country varied greatly in terms of how and when they decentralized further to municipalities, and the extent to which state governments provided resources for strengthening municipal service provision.

The presidential decree initiative was framed around a larger challenge of redressing years of underdevelopment of state and municipal governance capacity,

[In the face of] a definitive policy of strengthening federalism...there is resistance by proponents of a... 19th century...centralism, and a regressive attitude by those who, espousing arguments of administrative technocracy, assume that centralized systems are superior, which undermine the development of local governments, and fail to value the technical and administrative capacity that may be achieved when the entire gamut of responsibility is transferred. (Secretaría de Asentamientos Humanos y Obras Públicas, 1981)

While the presidential decree was an important first step, it was a formality that began a protracted process of decentralizing municipal water and sanitation services.

De la Madrid's administration went further in institutionalizing decentralization processes across a wider array of policy areas. In the National Development Plan, de la Madrid proposed three policy goals to address the problem of centralization: strengthening federalism, promoting regional development and strengthening municipal life (Secretaría de Programación y Presupuesto 1983, 96). In 1983, Article 115 of the constitution was amended to increase municipal budgeting and spending authority. The constitutional amendment gave municipalities control over tax collection and expenditure, and bestowed local governments with the responsibility for basic local services,⁶⁹ among them, water and sanitation delivery. The constitutional amendment primarily elaborated the thorny issue of municipal budgets and strengthening administrative and fiscal authority at the municipal level. Among secondary concerns was transferring a series of local services to the municipal jurisdiction, "[therefore, decentralization of] water was not the key issue, but a circumstantial one" (Aguilar Amilpa and Olivares 2008, 62).

⁶⁸ See *Diario de la Federación*, November 5, 1980. Portillo passed this presidential decree under the auspices of the Secretaría de Asentamientos Humanos y Obras públicas (SAHOP).

⁶⁹ Local services may include water and sanitation, street cleaning, public lighting, garbage collection, urban transport, public markets, roads and highways, public security, parks and slaughterhouses. See Grindle (2007, 29).

During this time, federal administration of hydraulic policy in Mexico was disjointed and very much in transition. The Ministry of Hydraulic Resources had disbanded in 1976, and hydraulic management was joined with agricultural administration under the newly formed Ministry of Agriculture and Hydraulic Resources (Secretaría de Agricultura y Recursos Hidráulicos). In 1976, urban water delivery was transferred to the Ministry of Human Settlements and Public Works (SAHOP).

When the SRH fused with SARH, the functions related to potable water [delivery] became disarticulated... potable water was transferred to the Ministry of Human Settlement and Public Works (SAHOP), water quality was transferred to the Sub-secretary of Environmental Protection...and the potable water sub-sector went in all directions, it became disseminated, it had no roots, which [for so many years] the National Water Ministry had given it. (Aguilar Amilpa and Olivares 2008, 63)

The initial process of decentralizing municipal water services occurs under the auspices of shifting and transitional federal oversight in potable water services, which reflected the low level of coordination and planning evident in the initial stages of water decentralization.

2.3.3. Market Reforms Politics Shape New Financing Schemes

The new ideological current found in the market reforms policies of the 1980s shaped the new financing schemes taking place in the water sector. Although the new financing schemes would not begin to be formalized until the end of the 1980s, their roots began to materialize as early as the 1970s, in a program initiated under the Echeverría administration (1970-1976), called the Financial Investment Funds in Water and Sanitation (Fondo de Inversiones Financieras de Agua Potable y Alcantarillado), or FIFAPA. The World Bank provided the Mexican water and sanitation sector with a loan to be invested in a pilot program that would help develop the water and sanitation utilities in select urban cities throughout Mexico. FIFAPA was the first attempt at reforming the fiscal and administrative infrastructure of the nation's potable water sector, emphasizing a shrinking of governmental intervention, entrepreneurial leadership, and commercial efficiency. Under FIFAPA, the first independent water utilities emerged in a few key cities, financed for the first time by user charges, and utilizing commercial systems of accounting and book keeping. The first FIFAPA pilot program unearthed the systemic challenges in raising water prices and the complex politics of attempting to be a fiscally self-sufficient water utility in Mexico (Dau Flores 2008, 113).

Heavily influenced by World Bank policies and loan arrangements, the financing schemes that were promoted during the initial period of decentralization were intended to create water utilities that would no longer subsidize service. Instead, influenced by the NPM movement, water provision would be made more efficient by decentralizing to local levels and financing through user charges (interview with Sandoval, 2008). Decentralization was thought by advocates to promote greater efficiency because it would streamline the administrative and fiscal components of governance, eliminate redundancies in personnel across multiple tiers of government and decrease decision making time given that local officials would be responsible for addressing public grievances rather awaiting the decision of higher tiers of government. These new management techniques and financing schemes were particularly popular within hydraulic policy circles at the time, but they were not fully operationalized when the

When López Portillo decreed that water and sanitation services be transferred to state and municipal governments, the federal government signed *convenios*, or contracts, with each of the 31 states, transferring ownership and “deeds” of 1, 549 potable water and sanitation networks to the corresponding state government (Dau Flores 2008, 112). By transferring the water and sanitation networks to state governments, the federal government transferred the responsibility for their maintenance, operation and the corresponding financial obligations. The 1980 presidential decree stated local authorities were now responsible for revising water tariffs, assuring they covered costs, and eliminating subsidies to consumers (*Diario de la Federación*, 1980). However, there was no systematic corresponding financial support given to the new local governments, nor were their instructions or norms established that directed the local governments in how to raise their own revenues for water services.

Furthermore, the networks the federal government transferred to municipalities were old and outdated,

[Overnight, the federal government said] to the 2,000 plus municipalities in the country, here, it’s now your responsibility...but they were not transferring a model car year ’80, the model was year ’50, and it was missing parts, and the parts it had did not work...nor did they transfer the resources with which to administer the network, nor instructions on how to administer a municipal water utility. (interview with Olivares, 2008)

Some observers have called the process “decentralization by abandonment, [the federal government] simply said, here is [what is now] your problem and you get no more [money] from me” (Aguilar Amilpa and Olivares 2008, 63). In short, the single greatest problem facing the nation’s urban water and sanitation services was a lack of funding (*Diario de la Federación*, 1980), and the initial decentralization process simply transferred this problem onto state and municipal governments. Local governments inherited deteriorated networks in disrepair—with no corresponding mechanism by which to ameliorate the systemic under-funding that plagued service provision.

In sum, the 1970s and 1980s was a period of economic and political crisis that fundamentally reoriented the development and financing of water and sanitation delivery throughout the country. The economic crisis led to austerity measures that changed the federal government’s long standing pact to provide many services under cost or for free. The economic crisis also stimulated interest in “offloading” financial burdens that the central government had carried for decades and transfer them to lower levels of government. The rise of a new ideology that emphasized a shrinking of state intervention, efficiency in government provision and market-based solutions greatly influenced the policy initiatives surrounding the initial decentralization process of water and sanitation, although these initiatives would remain unconsolidated for several years. Politically, the PRI regime invested in decentralization as means to hold on to power, by strengthening political influence at the local level and by attempting to inject a sense of legitimacy to a process that had for long been seen as anti-democratic and non-participatory.

2.4. DECENTRALIZATION BY DESIGN: THE REFORM PACKAGE OF URBAN WATER DELIVERY (1989-2010)

2.4.1. Salinas and the National Solidarity Strategy

In 1988, President Carlos Salinas (1988-1994) took office under a tenuous economic and political climate. On the economic front, the 1980s was known as “the lost decade,” a period of negative economic growth. On the political front, support for the PRI was at an all time low, resulting in a near win for the opposition candidate, Cuauhtémoc Cardenas, in the 1988 election where Salinas won by a mere margin amidst accusations of widespread voter fraud. As his administration progressed, Salinas went further in implementing economic restructuring policies: removing restrictions on foreign ownership, destroying the power base of entrenched leaders in top unions, further privatizing state run industries, participating in the Brady Plan debt negotiations, taking a series of measures to strengthen Mexico’s financial services and most famously, entering into NAFTA (Rodriguez 1997, 42). These structural adjustments generated a large group of losers directly and indirectly hurt by the reforms, which further threatened the already dwindling political base of the PRI. In order to compensate losers of market reforms and regain legitimacy for the PRI regime, President Salinas devised a well-targeted relief program known as the Programa Nacional de Solidaridad (PRONASOL).

PRONASOL was a national reform program designed in great part by Salinas himself, to improve health, education, nutrition, housing, employment, infrastructure and local services, investing US\$12 billion in aid in the first five years (Córdoba 1994, 269). Despite the complexity and discretionary nature of the distributions, the objectives of the program were clearly stated: improve social inequality, increase civic participation, and strengthen municipalities as service providers (Cornelius et al 1994, 15). The Salinas administration emphasized that the program would both contribute to social welfare and modernize state-society relations. “[PRONASOL] would serve as the most visible, concrete expression of Carlos Salinas’s newly articulated doctrine of “social liberalism”- a mode of governance that ostensibly seeks to avoid the worst excesses of both unfettered, free market capitalism and heavy handed state interventionism, by steering a careful middle course between these “failed” extremes” (Cornelius et al 1994, 4).

Salinas, following de la Madrid’s example, represented a new generation of PRI reformers--“technocratic modernizers” who had gained the upper hand over the traditional political class and were determined to revitalize support for their party while at the same time modernizing it. The “modernizing” reform agenda embodied in PRONASOL represented a “third way,” at once legitimating a modernization agenda in the context of Mexico’s populist tradition. Critics argue that PRONASOL “has provided state elites with the political conditions necessary to sustain the neoliberal model” (Dresser 1994, 144). Whether Salinas’s original intent was to re-legitimate the regime or simply institute a conventional social relief program, what is clear is that the vehicle for modernization was to be increased administrative decentralization, municipal capacity and civic participation (Bailey 1994). Under this context, a new potable water and sanitation policy was shaped.

2.4.2. The National Water Commission and New Market-Based Solutions to Water Provision

Since the dismantling of the Ministry of Hydraulic Resources in the mid 1970s, hydraulic policy in Mexico was disarticulated. There was a lack of institutional oversight with respect to potable water and sanitation, irrigated agriculture, water rights or even flood related catastrophes, and a need for integrated management of these variant uses of water. Furthermore, the 1983 decentralization reforms had decentralized water provision to municipalities, who had limited financing and administrative capacity, further exacerbating the water and sanitation situation in Mexico (Aguilar Amilpa and Olivares 2008, 64). Given the dire state of Mexico's water provision, access to potable water was one of the "most frequently and intensely voiced demands heard by Salinas in his 1988 presidential campaign" (Bailey 1994, 112; interview with Rodriguez Briceño, 2008). Aside from access to drinking water, Salinas also heard from many citizens in both the urban and rural sectors who emphasized the need for a water-specific authority who had the technical capacity and normative authority to dictate hydraulic policy (Rodriguez Briceño 2008, 51). As a presidential candidate, Salinas articulated a firm understanding of the problem at hand, providing a concise diagnosis:

The rapidly growing demand for water in urban and regional centers throughout the country, the depletion and over-extraction of water sources, the constant contamination of water supply and the disproportionate increase in [service] costs have made access to [potable] water one of the gravest problems facing this country, and one of the principal limiting factors of development. (1987)

To address these problems and fulfill a series of campaign promises, Salinas pushed for the creation of the National Water Commission in 1989.⁷⁰ The creation of the National Water Commission marks the beginning of a new sectoral policy agenda in hydraulic matters, and in particular in operationalizing the decentralization reforms that began with the 1983 amendment, but had yet to be realized nation wide (Aguilar Amilpa and Olivares 2008, 64).

Under the auspices of the PRONASOL program, in 1989 the National Water Commission launched an ambitious program called the National Potable Water and Sanitation program (Programa Nacional de Agua Potable, Alcantarillado y Saneamiento). Given its target scope and budget, the Potable Water and Sanitation Program (1989-1993) appeared to be the "big ticket" item and in some respects the "heart of PRONASOL" (Bailey and Boone 1994, Appendix).⁷¹ The National Potable Water and Sanitation program was designed to reorient water and sanitation delivery towards an ideological framework and managerial approach espoused by PRONASOL and the Salinas administration. This new approach was rooted in the conviction that water should be assessed through its economic value, as Salinas clearly stated during his presidential campaign: "There was a notion, valid in previous decades, that water and air are free, but today we cannot continue to view neither water nor air in that manner...water should be assessed by its true [economic] value" (Salinas 1987). This economic valuation of water and its implications represented a triumph of modernizing technocrats over traditionalist PRI figures in hydraulic policy and the party more generally. By developing decentralization reforms,

⁷⁰ The National Water Commission, or the Comisión Nacional del Agua, is a commission that resides under the Ministry of the Environment and Natural Resources (SEMARNAT).

⁷¹ See Bailey (1994), Appendix.

promoting cost recovery, implementing an entrepreneurial business model in delivery and increasing transparency, civic awareness and participation, potable water policy was reshaped to reflect the “social liberalism” Salinas espoused.

2.4.3. The National Potable Water Sanitation Program and APAZU

Upon launching the National Potable Water and Sanitation Program, the National Water Commission diagnosed the grave problems in the sector. In 1988, 18 million people lacked potable water, 30 million people lacked basic sewerage and less than 10% of wastewater was treated. An estimated \$500 million MXP was needed to modernize the sector, a process which necessitated a broad series of financial, technical, organizational and institutional reforms (Comisión Nacional del Agua 1989-1993). Three major problems were identified: a lack of technical capacity of water utilities, the politicization of the water utility, and the limited funds generated through consumer fees. The limited funds that were collected were now utilized discretionally by the municipality and often not re-invested back into the water utility (Aguilar Amilpa and Olivares 2008: 64). These problems led to a famous vicious cycle: water and sanitation service was highly deficient due to limited and misused revenue collection, and consumers were progressively more reluctant to pay for services given its deficiency, further undermining the possibility of infrastructure maintenance (Comisión Nacional del Agua 1989-1993).

Through the years and under future presidential administrations, the National Water Commission would further develop and modify their Potable Water program, but the initial framework established during the Salinas administration would set the course for Mexico’s current potable water and sanitation policy. The program’s key elements marked a sharp departure from the historical management of water and sanitation delivery in Mexico.

Table 2.3. The National Potable Water and Sanitation Sanitation Program Policy Objectives (1989-1994)

| | |
|-------------|--|
| To promote: | |
| 1) | The creation of “corporatized” water utilities at the municipal level for municipalities > 50,000 population |
| 2) | Cost recovery from consumers |
| 3) | Water cut offs for non-payment |
| 4) | The creation of a state-wide institutional rector |
| 5) | “Performance based” financing schemes |
| 6) | Civic awareness and participation through “cultura del agua” |
| 7) | Private participation and investment |

Source: Comisión Nacional del Agua (1989-1993).

The first policy objective was to modify and further develop the 1983 decentralization reforms began under de la Madrid by promoting the decentralization of autonomous water and sanitation utilities at the municipal level for cities greater than 50,000. These water utilities would have a “corporatization” model, as recommended by international development banks.

They would be public entities fiscally and administratively independent from their municipality but under the jurisdictional authority of the municipality or state in which they reside. In Mexico, this process was referred to as creating a decentralized water and sanitation utility with judicial personality (*personalidad juridical*) and national patrimony (*patrimonio propio*). These policies were a key modification to the previous decentralization initiative as it was an attempt to create an institutional separation from the water utility and governmental counterpart in order to depoliticize water delivery.⁷²

Second, the new utilities were intended to be fiscally self-sufficient through service collection fees that covered both the cost of service and future investment in service development. Cost recovery was a policy espoused by lending institutions and in particular in international water management practices during this time; a policy based on the economic valuation of water.⁷³ As promoting cost recovery policies in large urban centers became the norm, the federal government began to eliminate, in part or whole, federal subsidies for operational and maintenance expenses associated with local water and sanitation delivery. Therefore, raising revenues through user fees became the principle mechanism by which water utilities could provide basic maintenance to their network infrastructure and pay basic expenses, such as labor, electricity and gas.

Third, cost recovery would be promoted in part by suspending service for non-paying customers. Service suspension would entail a modification to state law, as discussed in chapter 3.

Fourth, the National Water and Sanitation program sought to promote further decentralization to municipalities by enabling state governments to take an active role in this process. As discussed in Chapter 3, the decentralization reforms that began in the 1980s were seen as a two-step process: first to state governments through state water commissions and wherever possible, second to municipal governments. The National Water and Sanitation program hoped to further develop the role of state water commissions in the states where they existed, or create them for the first time in states where they were absent. The state water commission would serve three primary functions. First, the state water commission would be a state-wide institutional rector in all hydraulic matters. Second, the state water commission would provide technical and administrative support for municipal water delivery, encouraging decentralization to municipalities wherever possible. The national potable water policy saw the state government as an important intermediary between the federal government and the municipality and the primary mechanism through which to promote municipally decentralized and autonomous water delivery (Aguilar Amilpa and Olivares 2008, 64). The National Water Commission hoped to create state-wide institutional rectors in hydraulic policy by promoting a “model” law (*ley tipo*) at the state level and creating a financing scheme that gave state governments fiscal and administrative authority in municipal service development.

⁷² Corporatization, a term used by international lending and policy institutions such as the OECD, refers to the process of a water utility becoming an incorporated legal entity, legally and fiscally autonomous as an municipal (or state) agency from the municipal or state government in which it resides. Corporatization is meant to create higher independence from political processes, promote fiscal self-sufficiency and opportunities for bench-marking. See Organization for Economic Cooperation and Development (2009).

⁷³ Placing economic value on water became an internationally held principle in water management by the early 1990s, as articulated by the Dublin Statement on Water and Sanitation Development during the International Conference on Water and the Environment, January 31, 1992. <http://www.un-documents.net/h2o-dub.htm>.

Fifth, while cost recovery strategies were intended to cover operational costs, water utilities would have access to federal funds for larger infrastructure development. Infrastructure development may include projects for potable water network development, water potabilization plants, metering at water source, or metering consumer consumption, creating infrastructure network blueprints, commercial accounting systems, automatization of the piped network, and elimination of leaks and managing rainwater runoff. For municipalities greater than 2,500, an important new program to help fund these projects was developed, “Programa de Agua Potable, Alcantarillado y Saneamiento en Zonas Urbanas,” (APAZU).⁷⁴ APAZU is funded by congressional monies and administered by the National Water Commission at the federal level, and state water commissions at the state government level. While the National Water Commission sets the operating procedures and normative guidelines for APAZU, state water commissions are the “technical agents” and are charged with allocating the resources to municipalities, or undertaking the infrastructure construction on behalf of municipalities if they are unable to do so.

APAZU has several important characteristics which represent a new entrepreneurial management initiative in water administration. First, the federal funds that are allocated through APAZU cannot be used to maintain and operate the infrastructure; it can only be used for infrastructure construction. Second, in order to access funds, states or municipalities must provide a matching counterpart to the federal allotment, which in the case of municipalities, favors wealthier water utilities. Third, APAZU requires master blueprints, and therefore favors water utilities with the technical capacity to design construction plans, or the financial resources to commission these plans. Fourth, access to funds is performance-based, so a water utility must be sufficiently well performing in order to access funds. Performance-based funding makes it difficult for water utilities that fall behind to “catch up.”⁷⁵ Fifth, in an effort to modernize billing and collection and create greater efficiency supply side, greater priority is given to proposals that introduce extraction metering and consumption metering, as well as commercial software and accounting and collection systems (Diario de la Federación 2007).

APAZU was created to modernize water and sanitation delivery by emphasizing new accounting and efficiency mechanisms that would develop the *business* of water delivery. As the first director of the National Water Commission stated,

Water and sanitation *delivery* can be characterized as a business, a business which takes [unfiltered] water from nature, raw water; treats the water, purifies it, distributes it to the population for consumption, once used, carries the used water away, treats this [wastewater] and empties it into rivers; for this service of distribution of water and collection of wastewater, [the company] charges a tariff and with that tariff [revenue] can invest in increasing coverage and improving service...it is a company...a public company. (González Villarreal 1992, 55)

⁷⁴ The counterpart program for rural areas is called Agua Potable y Saneamiento en Comunidades Rurales (PROSSYPS).

⁷⁵ While water utilities must report their performance figures in order to apply for funds, these performance figures are not independently confirmed or audited by the National Water Commission, so water utilities are encouraged to make up their numbers in order to access funds. Throughout the research for this project the author found that water utilities routinely keep several different versions of their performance indicators, one for the National Water Commission, one for the fiscal auditing agencies, and one for themselves, the latter being the most credible.

The new philosophy was simple: local water and sanitation utilities, although owned and managed by the public sector, were to operate like a private business, implementing new accounting and administrative techniques that would continually invest in the business's future development. The product was piped, treated water delivered to homes and industry, as well as the retrieval and clearance of wastewater. For this service, the public would pay a price that would cover the cost of service, and the water utility would be self sufficient through the collection of these revenues. The low-level equilibrium discussed in Chapter 1, also known in Mexico as the "vicious cycle," would be broken by improving the product, because a better product would increase revenues and increased revenues would improve service. This conceptualization of water delivery and the new strategies that promoted it was a striking departure from prior public management of the resource. APAZU was the institutionalization of the Salinas initiative in water policy; a program that has outlived the PRONASOL initiative, prior administrations and continues to be the heart of potable water policy in Mexico's large urban centers.

Sixth, in order to foment public acceptance of the new policies underway in the sector, the National Water Program emphasized civic engagement through a new water conservation initiative (*Cultura del Agua*). This new water conservation program was intended to disseminate to the public that water was a scarce resource, and its conservation required civic participation. In its policy initiative, the National Water Commission hoped to "create a new water culture, promoting informed participation of the public in the planning, preservation and administration of the nation's hydraulic resource" (Comisión Nacional del Agua 1989-1993, 41). Mirroring the grassroots rhetoric of other PRONASOL programs, an emphasis on civic participation was articulated by Salinas during the inauguration of the National Water Commission, where he stated, "we begin the task of a rational use of water that the country needs...let us create a new culture of water, and let it be a part of the modern Mexico, fair and vigorous, that we are tasked with developing" (Salinas, 1989). The National Water Commission created a strategy, disseminated through state water commissions and local water utilities, of civic outreach primarily through elementary school outreach. During his presidential campaign, Salinas stated clearly what was to become the goal of the *Cultura del Agua* initiative, emphasizing the role of outreach through schools:

We must promote a new culture of water as a scarce and vital resource. In order to do so, it is imperative to work via education in our schools and participation of the family. It is necessary to recreate in our children and in our family members the significance of water. This appreciation begins in our homes and continues, in a dedicated and committed fashion, in our schools; we must face [this task] responsibly and enthusiastically. (1987)

While water conservation was an important aspect of the *Cultura del Agua* initiative, the emphasis of the many water utilities that employ it is has been to promote a culture of payment (*cultura del pago*). The concept is two-fold: water is a scarce resource and need civic participation in order to conserve it, but it can only be conserved and service improved through paying for service. The new initiative has been a public ad campaign that has emphasized water scarcity, communal conservation efforts and payment of service in order to guarantee water for future generations. *Cultura del Agua* been an important component of the National Water and Sanitation Program—simultaneously sensitizing citizens to water conservation efforts and the economic valuation of water. Although it is questionable whether the *Cultura del Agua's* effects

are measurable, the goals of this program mirrored tenets in the Salinas-PRONASOL initiative: to generate civic participation and a cooperative effort in hydraulic policy.

Seventh, the National Water Program envisioned that the participation of the private sector would be a key resource in the new strategies being adopted in the sector (Comisión Nacional del Agua Informe Annual 1989-1993, 90). The private sector would provide much needed capital investment and private firms who specialized in water and sanitation delivery—namely international conglomerates—would provide the administrative and technical expertise necessary to “modernize” the sector. The promotion of private participation in the sector was well known in policy circles at the time but not part of President Salinas’ rhetoric. After an initial expression of the initiative during his presidential campaign, it did not seem a politically popular position and so was relegated to the technocrats rather than to popular dissemination (interview with Rodríguez Briceño, 2008). Private participation in water and sanitation delivery in Mexico has been limited to a few cases,⁷⁶ and seems to no longer be on the policy agenda (multiple author interviews). What continues to be actively promoted is private capital investment and concessions in wastewater treatment plants, where the National Water Commission⁷⁷ and the Mexican Development Bank, BANOBRAS, have played an important role.

2.5. CONCLUSION

The evolution of water and sanitation policy in Mexico has reflected the larger economic and political climate under which it developed. Water and sanitation networks were constructed by the federal government as Mexico began to be less dependent on irrigated agriculture and more interested in developing industry and providing services for its expanding urban population. During the mid-twentieth century, water was seen as an important aspect of the national patrimony, and imbued with the symbolic language of the PRI’s revolutionary ethos: social welfare protection and access for all. While water and sanitation access was certainly not available to all, in many cases it was used as an important patronage resource, discretionarily distributed as PRI officials saw fit. The economic crisis and ensuing austerity measures of the

⁷⁶ Private participation in Mexico’s potable water and sanitation sector was also promoted in the 1990s by the National Water Commission and international lending institutions during a time when concession contracts in the sector were more widespread. In addition, the National Water Law (Ley de Aguas Nacionales 1992; 2004) encouraged the participation of the private sector in various forms of water management, including urban water delivery. A handful of concession contracts were awarded throughout Mexican municipalities: e.g. Aguascalientes, Cancun, and service contracts in Mexico City and Puebla. For a detailed list of all private participation in Mexico’s water and sanitation sector, including concessions and infrastructure BOTs, see the World Bank’s “Private Participation in Infrastructure Database.” Private participation of water and sanitation delivery concessions did not go further in Mexico, as they did in Argentina, Chile and Colombia for example, due to the lack of regulatory institutions, public resistance to privatization and the role of ANEAS, the water utility trade organization, that stood to lose from supporting widespread privatization efforts. For an overview of private participation in the sector, see Davis (2005). For an overview of efforts in Mexico, see Barocio y Saavedra (2004). For an overview of experiences and policies in Mexico, see Comisión Nacional del Agua (2003). My research had found that the market-based policies in municipal water provision I describe in the dissertation became more politically viable than privatization and have taken its place in Mexico.

⁷⁷ These policies have recently been promoted through the program PROMAGUA, administered by the National Water Commission. BANOBRAS provides financial incentives to induce capitalists to invest in sanitation treatment programs at a reduced capital investment quota, essentially minimizing the amount of capital risk the private concessionaire absorbs (multiple author interviews).

1980s forced a new policy reconfiguration on the sector, and the resulting water policy program that emerged in the 1990s reflected a new set of priorities.

The market reforms and technocratic politics of the post-1980 era in Mexico reshaped urban water and sanitation policy. In important ways, Salinas's PRONASOL program and "social liberalism" rhetoric oriented Mexico's urban water policy towards a middle direction: the sector did not privatize extensively⁷⁸ but it did undertake an extensive modernization program emphasizing new market solutions to water delivery, albeit within the public sector. These mechanisms of cost recovery, service suspension for non-payment, and performance based funding were based on the newly espoused adage that water is an economic commodity and should be managed based on market-based principles.

The new market solutions to water delivery envisioned a starring role for municipal governments who would form water utilities and administer service, many for the first time. After decades of highly centralized and federalized service delivery, administering service based on billing consumers and collecting fees was a tall order for many municipal governments who did not always have the necessary technical and administrative capacity, and the APAZU program favored better positioned municipalities. The remainder of the dissertation explains the circumstances under which some water utilities fared better than others, but in all cases the process of changing societal expectation that water is provided free or cheaply by the federal government has been difficult to accomplish after decades of subsidized provision.

While water and sanitation delivery decentralization was an administrative act, it had serious political implications because it bestowed state and municipal governments with the fiscal and administrative responsibility to administer an important service, and also introduced a new sphere of influence to state and local governments as mayors and governors now controlled the appointment of water utility directors, a politically important post. Despite the new emphasis on technocratic politics and new public management, many basic services such as water and sanitation delivery continue to be political battlegrounds, and local governance capacity remains elusive in many cases. The long road to municipal importance continues to unfold in Mexico but in few places is it as vital as the development of adequate water and sanitation delivery, which reflects the health and future development prospects of Mexico's urban epicenters.

⁷⁸ Unlike privatizations that occurred under political parties with pro-market ideologies and policies, such as Pinochet's Chile, Menem's Argentina, and Gaviria/Samper's Colombia.

Appendix 2.1. Timeline of Mexican Urban Water Policy

| | |
|------|---|
| 1824 | Constitution of the United Mexican States created the federation |
| 1857 | Constitution of the United Mexican States, associated with Porfirio Diaz regime |
| 1917 | Constitution of Federal Republic of Mexico, current constitution |
| 1926 | National Irrigation Commission (Comisión Nacional de Irrigación, CNI) established |
| 1929 | The National Revolutionary Party (Partido Nacional Revolucionario) established, (PNR), renamed Institutional Revolutionary Party (PRI) in 1938 |
| 1946 | Ministry of Hydraulic Resources (Secretaría de Recursos Hidráulicos, SRH) established |
| 1948 | The General Office of Potable Water and Sanitation (Dirección General de Agua Potable y Alcantarillado, SGAPA) within the Ministry of Hydraulic Resources established |
| 1948 | Federal Law of Sanitation (Ley Federal de Ingeniería) established |
| 1956 | The Law of Cooperation (Ley de Cooperación para Dotación de Agua Potable a los Municipios) established |
| 1976 | The Ministry of Hydraulic Resources and Public Works (The Secretaría de Recursos Hidraulicos y Obras Públicas (SAHOP) replaces the Ministry of Hydraulic Resources's construction functions |
| 1976 | The Ministry of Agriculture and Hydraulic Resources (The Secretaría de Agricultura y Recursos Hidraulicos, SARH) established |
| 1980 | Decentralization of potable water and sanitation systems to states and municipalities by presidential decree |
| 1982 | The Ministry of Urban Development and Ecology (Secretaría de Desarrollo Urbano y Ecología, SEDUE) established |
| 1983 | Constitutional Reform of Article 115 transfers potable water and sanitation system to municipalities and states |
| 1989 | The National Water Commission (Comisión Nacional del Agua, CNA) established |
| 1989 | The National Potable Water and Sanitation Program (Programa Nacional del Agua Potable, Alcantarillado y Saneamiento) established |
| 1992 | Potable Water, Sewage and Sanitation in Urban Zones (Programa de Agua Potable, Alcantarillado y Saneamiento en Zonas Urbanas, APAZU) |
| 1992 | National Water Law passed (amended in 2004) |

Chapter Three: The Rise of State Level Institutional Support for Municipal Policy Reform

3.1. INTRODUCTION

Decentralization of water and sanitation provision reoriented the relationship between federal, state and municipal governments; breathing new life into Mexico's federal system, if not always leading to improved service provision. The dissertation argues that a mayoral-business coalition must form in order to implement and sustain improved municipal service delivery—this is the first condition. Yet once the first condition has been met, state governments can be an important resource in the implementation stages of the reform process—this is the second condition. However, some state governments are able, or willing, to provide more institutional support to their municipalities than others. I find that although state institutional support *alone* is not a sufficient condition for improving municipal provision, coupled with a mayoral-business coalition, some amount of state level support is a necessary condition for municipal service reform in the water and sanitation sector.

Decentralization in Mexico's water and sanitation sector occurred in two waves: first, service responsibility was transferred from the federal government to states in the 1980s, second, the federal government promoted an additional transfer from state governments to municipalities in the 1990s. This chapter argues that the choices made by state governments during the first wave of decentralization shaped their ability to provide support for municipal water provision during the second wave of decentralization. In the first wave of decentralization, institutional arrangements became entrenched at the state level that became difficult to undo during the second wave of decentralization.

This chapter illustrates how different support structures emerged in the three state cases under study. Although potable water services were decentralized to municipal governments by the second wave of decentralization, in practice state governments maintained a wide range of control over municipal service provision. States determined fiscal resource allocation, which infrastructure projects would be constructed, and the juridical framework of municipal service provision—making states pivotal actors in municipal service provision. I conceptualize the support structure, or institutional support, states can provide municipalities with respect to creating *legal frameworks*, promoting *cost recovery pricing policies*, and providing *technical support*. The support structure framework illustrates the degree of coordination or conflict between each state and their respective municipalities, which I argue affects the ability for municipalities to implement reforms in the water and sanitation sector (assuming the first condition of the argument has been met).

This chapter proceeds as follows. First, I introduce the decentralization transfer in Mexico's water and sanitation sector as a two-wave process; each wave generated a new configuration of shared authority between state and municipal governments. Second, I present the analytical framework of state support structure for municipal service provision across three dimensions, describing the outcome under study. Finally, I apply the analytical framework to the three state cases, using process tracing to explain how the timing and sequencing of the first

wave of reforms affected the type of support structure that emerged in each of the three cases in the second wave of reform.

3.2. DECENTRALIZATION AS TWO-WAVE PROCESS AND ANALYTICAL MODEL

3.2.1. First Wave of Decentralization Reforms: States Become the New Final Arbiter

Decentralization of water and sewerage services occurred in two waves in Mexico, each wave generating a new configuration of shared authority between state and municipal governments. The first wave began in 1980:⁷⁹ the federal government transferred responsibility for water services to state governments, signing accords with each of the 31 Mexican states. Although the decentralization transfer stipulated that both state and municipal governments would share responsibility for water services, state governments were ultimately responsible for service provision if their municipal governments were unable to provide services. Because municipalities were weak throughout much of Mexico during this time, this clause meant that in effect state governments had de facto control over water provision once service responsibility was transferred. First, the federal government transferred to state governments the physical infrastructure (including the rights, deeds and fiscal value of the piped network). Second, the federal government transferred the responsibility of managing hydraulic infrastructure construction exclusively to state governments. Third, the federal government transferred the responsibility of urban services provision to state governments, leaving the decision to decentralize further to municipal governments to the states.

What was significant about the 1980 federal transfer of service delivery was that it outlawed federal participation in service delivery, and made state governments the “final arbiter” and legal authority in local service delivery (Diario de la Federación 1980, Article 2-3). While the transfer stipulated that either state governments or municipal governments may deliver service, the legal transfer was made to, and signed, by the state governments. States were now the “provider of last resort”-- if municipal governments could provide service, they were entitled to do so, if not, state governments were now solely responsible for potable water delivery throughout the localities within its borders.⁸⁰

As will be discussed later in this chapter, each state had a varied response to the first wave of decentralization, creating different institutional arrangements to manage fiscal resources from the federal government as well as manage service delivery throughout the state. The general pattern throughout the country was the creation of state water operators, or “state water commissions” developed throughout the country. State governments had a wide range of

⁷⁹ This process commenced with a presidential decree by José Lopez Portillo on November 5, 1980. The decree transferred the legal rights, administrative responsibility and the fiscal value of all of the nation’s water and sanitation systems to their corresponding state government. Although the presidential decree stipulated that either state governments or municipal governments could deliver service directly, the legal transfer was from the federal government to state governments and placed service provision directly under state government authority.

⁸⁰ A total of 1,161 systems, many of them inter-municipal or multi-population systems, were transferred, of which 864 corresponded to municipal capital cities and state capitals, and 687 corresponded to other localities in the corresponding state (Rodriguez 2008, 48).

authority and political discretion in administering service, influencing the price setting process and revenue streams of service provision, whether at the state or municipal level.⁸¹

3.2.2. Second Wave of Decentralization: Municipalization and the Rise of State Institutional Support

The second wave of decentralization began soon after the creation of the National Water Commission in 1989. The policy initiatives that emerged broke sharply with what had developed in the 1980s during the first wave of decentralization. During the second wave of decentralization, the federal government designed a series of sectoral policies that emphasized two key initiatives: First, creating a standardized, cost recovery pricing and water distribution system that would help eliminate discretionary service practices and improve service quality. Second, the initiative emphasized further decentralization to municipal governments and elimination of direct service provision by state governments. As discussed in Chapter 2, the emphasis on municipalization in the sector has reflected a national imperative that began with the 1983 constitutional amendment and had gained traction in the following years with President de la Madrid, and later President Salinas, espousing the virtues of increased municipal autonomy and administrative capacity. With each subsequent presidential administration, a push towards increasing municipal autonomy was revisited or enhanced.⁸²

While the first wave of decentralization reforms had occurred with little policy design, the federal government hoped to ameliorate what they considered to be a dire situation: a lack of institutional and legal frameworks at the state government level, a lack of fiscal self sufficiency among water and sanitation utilities, and a serious lack of municipal administrative capacity. As discussed in Chapter 2, the federal government began promoting a series of policy measures for improving municipal service provision in 1992, but the degree and timing of policy adoption by state governments has varied greatly,⁸³ as will be discussed in the following section. The policy emphasized the creation of decentralized municipal water and sanitation utilities in metropolitan areas with population over 50,000, and a retreat of state level provision in those urban centers. The federal government wanted state governments to focus on hydraulic *management*, not direct service provision. Instead, the state service providers would become institutional overseers of municipal services, in some cases regulatory bodies would be created, and the state government

⁸¹ While some states established tariff (water price) review processes based on an administrative review by the board of directors of their state water commission (part of the executive branch), the majority of states mandated that tariff review processes be part of the state revenue law (*ley de ingresos*) or through authorization by state congress (Rodriguez 2008, 49).

⁸² For example, de la Madrid initiated reformed Article 115, initiated a 1984 Municipal Reform agenda, and created the National Center for Municipal Studies, a research center on municipalities (see Rodriguez 1997, 75-76). Salinas created the National Center for Municipal Development (Centro Nacional de Desarrollo Municipal), an organization designed to strengthen local government and administrative capacities to manage public services (Grindle 2007, 30) and established the PRONASOL program designed to intervene largely through municipal channels (see Chapter 2). President Zedillo and Fox have subsequently introduced their own municipal autonomy building programs.

⁸³ There are exceptions to this arrangement. Some states, for example, Queretaro, Quintana Roo, Baja California and Nuevo Leon have maintained their original structures and continue to provide service provision through the state apparatus (Rodriguez 2008, 51). Although they differ from one another, they have consolidated and further developed their water and sanitation delivery, in many cases they are examples of an excellent degree of service delivery in Mexico.

would intervene as advisors and institutional rectors.⁸⁴ To promote this new state role, the federal government promoted a “state hydraulic model law.” The model law stipulated a legal framework that state governments might adopt in order to promote municipalization of services, state level institutional oversight of municipal service provision, and fiscally self-sufficient water provision whereby water utilities covered their operating costs with user fees. The model law led to different state government responses across the three state cases, initiating the second wave of decentralization.

3.2.3. Analytical Framework

I propose an analytical framework that illustrates the new state-municipal interdependence in the second wave of decentralization reforms. This interdependence was primarily a support structure that state governments might provide municipal water utilities during the second wave of decentralization, or the further transfer of service responsibility to municipal governments. The support structure framework conceptualizes the new role of state governments in service provision, and the corresponding level of coordination or conflict that municipal water utilities and state water commissions would enjoy in the second wave of decentralization. The state support structure has three dimensions: legal framework, promoting cost recovery policies, and technical assistance. While these dimensions are based on federal policy recommendations, the support structure framework is my analytical innovation. I treat each of the three dimensions in turn.

First, state governments were responsible for providing an adequate *legal framework* for municipal service provision, primarily through the adoption of a “model state water law” that would effectively replace any and all prior state hydraulic laws.⁸⁵ State governments could choose whether or not to adopt the law, and amend its content based on the particular state’s local conditions. The model law was not only the legal foundation of state intermediation in the second wave of decentralization reforms, but it was also the primary articulation of the new federal level policy initiatives, and the key vehicle by which the federal government intended to further develop decentralization in the sector, “The path the National Water Commission chose was through the state law...the distance between the municipality and the federation is long, and even more so now [after decentralization]...” (Aguilar Amilpa and Olivares 2008, 68). Inscripting policy initiatives into law would be critical to developing the sector. In particular as state and municipal governments began to be taken over by opposition parties, the PRI could not count on being able to dictate policies informally through party channels for much longer (multiple interviews). The model law regulated actions of state and municipal governments in all matters related to the use, extraction and consumption of water as a natural resource as well as the service of water and sanitation delivery (‘Ley Tipo,’ Article 1).

Second, the state support structure consisted of promoting *cost recovery pricing policies*. States were in a position to coordinate a state-wide effort to standardize and update municipal

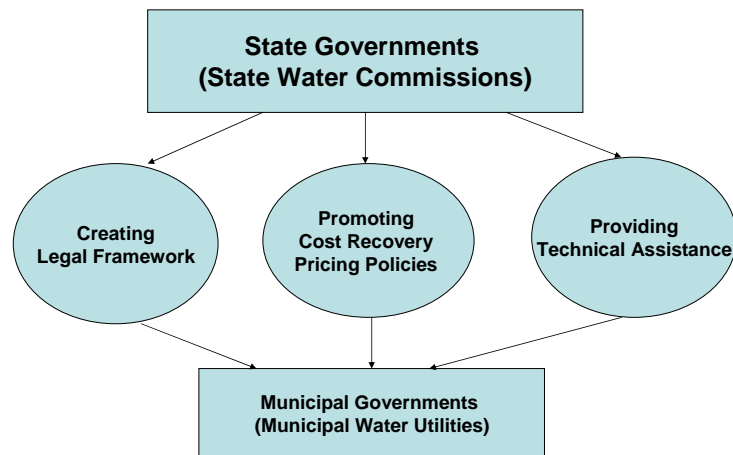
⁸⁴ It should be noted that in smaller municipalities and rural areas the state water commission may continue to administer service as necessary, but because this dissertation focuses exclusively on urban water and sanitation delivery, rural service provision is outside of the scope of this study.

⁸⁵ The model state water law (*ley tipo*) was designed by Urbano Farias in the 1990s (interview with Campos, 2008). Farias was a prominent expert on Mexican water law, see Farias (1993).

water price schedules, and institutionalize the price setting process with the State Congress, who was responsible for approving price increases. This coordination effort was instrumental to supporting municipal service provision, because it promoted standardized and equitable pricing initiatives, and discouraged discretionary pricing practices by municipal service providers. Two channels of action are relevant: (1) updating user fees and introducing metered consumption fees, ideally institutionalizing the fee modifications so that they are less subject to political approval and more based on the cost of service provision, and (2) improving commercial accounting capacity and thereby increasing collection efforts.⁸⁶

The third dimension of the support structure is whether or not state governments provided *technical assistance* to municipal water utilities, and whether this assistance was accessible in an equitable manner across states. State governments are in a unique position to offer technical support and serve an advisory role for municipal service delivery because state governments generally have more sectoral expertise and fiscal resources to facilitate technical training than municipal governments. Also, while municipal administrations are only three years long in Mexico, state administrations are 6 years long, allowing for greater policy continuity and technical expertise/knowledge accumulation at the state level that can then be a useful resource for municipal water utilities. Some examples of technical support are sponsoring operational systems training programs, staff training and certification programs, technical assistance in hydraulic project designs (necessary for applying for funding from federal government), and tracking and compiling performance indicators for municipal water utilities in the state. State governments may also have relationships with outside consultants who offer services in technical assessment, commercial software management, indicator and statistical information tracking, and other forms of analytical and technical support.

Figure 3.1. State Support Structures for Municipalities



During the second wave of decentralization, the configuration of shared authority shifted between state and municipal governments. While states were responsible for providing service during the first wave of decentralization, their roles shifted to providing institutional support for

⁸⁶ These aspects of pricing reforms are carefully conceptualized and measured as part of the dependent variable index in the dissertation, see Appendix A.

municipal service provision during the second wave. The support structure envisioned for municipal service provision dictated a high level of municipal dependence on state level decision-making in the sector, despite a federal level policy push towards municipalization during the second wave.

State governments, through their state water commissions, adopted the three types of institutional support outlined above to different degrees and at different times. The following section compares the experience of three state governments in Mexico: Guanajuato, Veracruz and Mexico State. In the first wave of decentralization, institutional arrangements became entrenched at the state level that became difficult to undo during the second wave of decentralization. These entrenched interests, and how long they were embedded during the first wave, influenced the degree to which the state governments were provided support structures for municipal service provision.

3.3. GUANAJUATO STATE: HIGH AMOUNT OF INSTITUTIONAL SUPPORT

3.3.1. Introduction

When Guanajuato experienced the federal government push for decentralization, the state responded in two important ways that shaped the construction of support structures during the second wave. First, the state government delivered services directly for only a brief period of time, and quickly decentralized to municipal governments before creating a state water commission. Because of the immediate shift to municipalization, the state water commission never delivered water services directly, and therefore did not have a conflict of interest in the second wave when it became an institutional overseer. Second, the state government began to craft a coherent sectoral policy in the first wave that did not include multiple state level actors. Because the state water commission was the sole hydraulic overseer and technical agent of the governor (as opposed to what occurred in Mexico State), important sectoral battles were minimized, and municipalities received a coherent and consolidated level of support from their state government. Few veto players at the state level promoted success in creating strong institutional support networks for municipal service provision. The following section describes how the institutional configurations that were set in motion in the first wave shaped the creation of state support structures in the second wave.

3.3.2. First Wave of Decentralization in Guanajuato

Guanajuato's potable water networks had been operated by the federal government since 1964, when a federal junta was created in the capital city of Guanajuato to service multiple municipalities throughout the state.⁸⁷ The federal junta was charged with constructing domestic delivery networks throughout the state, maintaining authority over the networks until the "theoretical" moment when municipal governments would be fiscally solvent and able to manage the systems directly (Comisión del Agua de Guanajuato, 2006a). In some cities throughout the

⁸⁷ See Guanajuato State Decree No. 181 (1964), which created the federal junta of potable water in the capital city of Guanajuato, Guanajuato.

state, a federal junta operated service exclusively for just one municipality, but was still managed by the federal government.⁸⁸

The first wave of decentralization began in the 1980-1983 period, when the federal government transferred responsibility for the construction and administration of the existing hydraulic infrastructure, and transferred the administrative responsibility of service provision to municipal governments with “relative ease” through the creation of juntas or municipal committees (Sandoval 2008, 6), only very briefly administering a handful of networks directly.⁸⁹ By 1988, all 46 municipal governments of Guanajuato were providing potable water service directly (Sandoval 2008, 6). At most, the state government operated municipal water utilities for five years, and only for a couple of years in some cities, such as Leon, Guanajuato. Therefore, the state government did not operate municipal water networks for very long in Guanajuato, and decentralized to municipalities early in the first wave of decentralization.⁹⁰

Towards the end of the first wave of decentralization (1991), a state-wide hydraulic authority in Guanajuato was created, the Comisión Estatal de Agua y Saneamiento de Guanajuato (CEASG).⁹¹ Guanajuato’s state water commission was initially created to coordinate and fiscally execute water and sanitation programs, and initially did little more than execute hydraulic infrastructure construction (interview with Meza, 2008). This was common in Mexico because state governments received the responsibility of being the fiduciary agent of hydraulic infrastructure construction within their state in the initial decentralization transfer. What was unusual about the formation of the state water commission in Guanajuato was that its creation did not create an “institutional conflict of interest” with the municipalities during the first wave. This stands in contrast to other cases that either delivered services for an extended period of time directly to municipalities (Veracruz), or sold water to municipalities as part of its institutional mission (Mexico State) during this period. Instead, the state water commission formed after service responsibility had already been decentralized to the municipalities, emerging as an institution that was relatively free of competing interests vis-à-vis the municipalities.

Another feature of how the Guanajuato state government responded to the decentralization transfer was that it did not create multiple state-level hydraulic entities. When the state water commission was created, it became the sole hydraulic entity in Guanajuato, so it did not compete with other state level agencies for federal resources earmarked for water management. By consolidating all of the state’s hydraulic authority under one agency, the negative consequences of infighting across hydraulic agencies, redundant and overlapping roles, as well as competition for federal resources, were avoided. The result was a coherent state-level sectoral policy that began to take shape towards the end of the first wave of decentralization, and would crystallize in the second wave in Guanajuato. Therefore, embedded loci of conflict within the state

⁸⁸ For example, the cities of Leon, Salamanca and Irapuato had municipal juntas that serviced only that municipality.

⁸⁹ Services were administered under a department specifically in charge of service delivery in the Secretary of Public Works. This Department maintained the hydraulic infrastructure ceded by the federal government, and transferred to municipal governments the responsibility of service provision in a few years.

⁹⁰ However, the 1991 Guanajuato Water Services Law dictates that the Guanajuato State Water Commission, CEAS, may deliver services if municipality is unable to do so (Article 9).

⁹¹ See Guanajuato State Decree No. 245 (1991), which created the Comisión Estatal del Agua y Saneamiento de Guanajuato (CEASG).

government or within state-municipal relationships, did not develop in Guanajuato's hydraulic sector during the first wave.

3.3.3. Second Wave of Decentralization in Guanajuato

The second wave of decentralization began in Guanajuato relatively early, with the 1995-2000 administration of Vicente Fox as governor, and his appointment of Vicente Guerrero as Director of Guanajuato's State Water Commission. During this period, the state water commission's responsibilities expanded into an important planning and management role based on six objectives: establishing a system of long-term hydraulic planning, promoting the creation and consolidation of municipal water and sanitation utilities, increasing water and sanitation coverage, promoting water conservation awareness and efficient water use, and promoting civic participation in integral water resource management.⁹²

3.3.4. Support Structure in Guanajuato

3.3.4.1. Legal Framework

The second wave of decentralization was further consolidated in 2000, when a new state water law was passed, expanding the scope of hydraulic resource management responsibility for the state water commission.⁹³ The new state water law was designed by CEAG to better reflect their policy goals and expand their authority, and supported by the governor. This law was robust and trendsetting with respect to the legal parameters of municipal service provision.

3.3.4.2. Promoting Cost Recovery Pricing (Fiscal) Policies

Second, the Guanajuato state water commission proactively coordinated a state-wide effort to standardize and update municipal water price schedules, and institutionalized the price setting process with the Guanajuato State congress, which was responsible for approving price increases. This coordination effort was instrumental to supporting municipal service provision, because it promoted cost recovery and equitable pricing initiatives, as well as the elimination of discretionary pricing and collection practices by municipal service providers. Guanajuato's state water commission pursued two channels of action in hopes of strengthening municipal cost recovery measures: service rate and fee increases, and standardization and improvements in commercial accounting capacity.

Since the first wave of decentralization reforms in the 1980s, municipal governments independently managed their water service rate and fee schedule setting policies, which led to a wide diversity of rates across municipalities. Service rate schedules were only occasionally made publicly available, and generally speaking service rates and fees were widely heterogeneous throughout the state. Independent price setting created problematic discretionary practices: different municipal governments charged different fees for the same concept (e.g., replacing a valve might cause \$MXP20 in one city and \$MXP50 in another), charged different rates for the same amount of consumption, and often failed to publish rates altogether.

⁹² Plan Estatal Hidráulico de Guanajuato 2000-2025.

⁹³ The state water commission was now called Comisión Estatal del Agua de Guanajuato (CEAG).

Although by law the municipality is obligated to publish [prices], they would either publish [prices] or not publish [prices], and there were such drastically divergent [prices], where for the same concept each municipality charged a different price”...(interview with Lara, 2008)

Not only were consumers at a disadvantage under such practices, but municipal governments recovered a small fraction of service rates and fees. Overall, prices were well below cost and not based on an operations cost analysis or any other formal calculations (interview with Cardona, 2008). Although the state water commission organized and funded municipal cost analysis studies for determining service schedules and fees in the 1990s, these studies would rarely provoke an increase in service rates—directors found it safer to ignore the studies (interview with Cardona, 2008; interview with Sandoval, 2008). Water utility directors were generally dissuaded from increasing service rates and fees for political reasons:

The director of the water utility did not want to change rates because they assumed that the municipal president or city hall would reject the proposal. In the saddest cases, before taking office, during the electoral campaign, the municipal administration would promise that they would not increase service rates, that they would lower the rate, and in extreme cases that they would eliminate the rate...That is what would provoke fear for the directors when increasing rates, they assumed that [doing so] would result in their dismissal. Seven years ago that was more or less the general scenario. That is the political issue. (interview with Cardona, 2008)

Furthermore, the state congress was responsible for approving municipal administration’s rates and fee schedules since the 1983 constitutional amendment, but this process was little more than a thinly veiled formality. Congress knew little about water price structures and did not want political backlash either, therefore the few municipal governments who submitted rate schedules to congress found their proposals approved, often reflecting a token change in rates, if any (interview with Cardona 2008; interview with Lara, 2008).

In 2001, the ad-hoc nature of price setting began to change. In 2001, Guanajuato’s state congress decreed that all water prices be published in the state’s income law (*ley de ingresos*). The congressional decree was an important turning point: mandated annual publication in such a legalistic forum provided the opportunity to professionalize and institutionalize the process. The first year that rates were published proved instructive because most local governments had not had the opportunity to compare their price setting practices with their neighbors nor were they accustomed to transparency and accountability in price setting:

There were municipalities that had two concepts, three concepts, and others that had 20, 30 concepts. And different prices for the same concepts. So when [rate schedules] were published in 2002 many water utilities complained that they did not know that these rates would be in effect for the entire year. So they realized that it was a problem, that is, we saw [the problem] from a state government perspective, and they saw it from a local perspective, and we of course saw the great diversity in service rates and also the low rates. (interview with Cardona, 2008)

After the illuminating experiences of seeing discretionary practices documented and made publicly available in the the state fiscal law (*ley de ingresos*), the state water commission saw an opportunity to standardize the process across the state’s 46 municipalities. With the support of municipal water utilities, Guanajuato’s state water commission hired an outside consultant to undertake a cost analysis study for each municipal water utility, and convened a Congressional “workshop” on water service rates and fees and the importance of cost recovery policies to

municipal service provision. After hours of discussion, congress passed the initiatives to increase rates unanimously (interview with Lara, 2008). The water price structure was reformulated and approved by Congress, and after three years, state wide service rates and fees revenues increased by 80% (Sandoval 2008, 10). Subsequently, Guanajuato's state congress has used the water service rate and fee norms that were established in 2002 with the direct coordination of the state water commission, based on rate standardization, rates that reflect the cost of service and gradually eliminates subsidies, and public dissemination of the new rates (interview with Lara, 2008).

The state water commission not only served an advocacy role with congress, but also served as a negotiator in harmonizing municipal utilities rate proposals that were at times in conflict with one another. The process necessitated much negotiation and compromise on the part of municipalities that were either increasing or decreasing their rates in order to create a uniform median baseline that would apply state wide. Without the help of a third party mediator such as the state water commission, such coordination between municipal utilities would have proved very difficult (interview with Cardona, 2008).

A key component of the institutional change was the introduction of a service rate costs methodology study, introduced by the outside consultant, that taught the municipal water utilities how to determine the costs of service using basic formulas that could be revised with new inputs annually. In this manner, both the problem of irregular price structures and low service rates were addressed (interview with Lara, 2008). Through the congressional initiative, the state water commission introduced the outside consultant and the rate methodology guidebook to municipal water utilities, all of whom have since adopted the new methodology. While during the first few years the municipal utilities contracted the annual rate schedule revisions to the outside consultants, most have gradually begun to undertake the exercise themselves (interview with Cardona, 2008).

The service rate schedules were accompanied with a larger educational and training effort undertaken by the state water commission, primarily focused on updating their commercial accounting practices in order to increase their billing revenue. The commission bought commercial software programs, helped train municipal utility staff on how to understand billing cycles, billing and collection indicators and track information over time. "The process was accompanied by analysis training; [promoting] understanding of how service rates function and concept training... [teaching] vocabulary and tools in order to confront this challenge and process" (interview with Cardona, 2008). The state water commission continues to help water utilities with their collection technologies: helping utilities update their metering technology, geographic information systems and collection processing (interview with Cardona, 2008).

3.3.4.3. Technical Assistance

The Guanajuato State Water Commission has provided a great amount of technical assistance to municipal water utilities, in the form of personnel training and certification programs, operational and infrastructure project planning assistance and performance information tracking. One of the most important methods has been efforts to increase professionalization and training in a workforce that is often under-trained and inexperienced,

particularly when incoming municipal administrations “houseclean” the water utility and insert new employees to correspond with the 3 year municipal administration cycle. This cycle of administrative turnover jeopardizes the knowledge base that is developed in the first few years of employment. Furthermore, it is often commented that 3 year administrations can only work for one year: the first year is spent learning the job, the second year devising policies and implementing programs, and the third year preparing the large volume of administrative documentation they are legally required to hand over to the incoming administration. Through workshops and information compilation, the state water commission attempts to increase the productivity window to two years (interview with Cardona, 2008).

A state water commission initiative in the 2000-2006 administration created a certification program⁹⁴ that document and provides credentials to workers in the potable water sector. The certification workers obtain is meant to help protect their employment by arming them with credentials that may impress future administrations and diminish the probability of replacement. From 2000-2005, 361 certificates were administered (Comisión Estatal del Agua de Guanajuato, 2006b). To a limited extent, state water commission provides technical assistance to smaller and needier water utilities that lack adequate technical planning departments, and at times helps funds some projects. This is an area where the state water commission may be more supportive, but policymakers are clearly reluctant to intervene directly in operations, and the smaller operating budget for technical assistance reflects their trepidation (interview with Lopez, 2008).

The state water commission has also compiled municipal performance indicators since 1995, providing a valuable source of information for municipal water utilities. Additionally, compiling this information has helped the state water commission track which water utilities are advancing along, and which ones need additional support. Using this information and intimate knowledge of local performance as judged by state water commission employees, the 2000-2006 state water commission administration⁹⁵ organized a series of “state service awards” for municipal water utilities in areas of environmental protection, commercial efficiency, culture of water, technical efficiency and also ones in which municipal governments who most support their water utilities won prizes (Sandoval 2008, 10). Furthermore, during this period water utilities performance was published in newspaper and other public forums in order to reward and motivate water utilities in their efforts to improve service, as well as educate the public about how the service charge increases were being used.

In sum, the Guanajuato State Water Commission never provided municipal service directly (as was the case in Veracruz), or sold water to municipal water utilities during the first wave of decentralization (as was the case in Mexico State). Therefore, there was no conflict of interest that formed during the first wave between the state water commission and the municipal water utilities during the first wave. Instead, when the state water commission formed midway through the first wave, it was able to adopt a role of hydraulic resource management and

⁹⁴ The certification is voluntary, expires after a period, and workers may accumulate a number of accreditation certificates across different job types (Comisión Estatal del Agua de Guanajuato 2006b). This innovative program is a first step towards strengthening municipal human capital development, but is not yet so institutionalized in the state water commission that it is assured to be part of the commission’s advisory strategy in the future.

⁹⁵ Headed by Ricardo Sandoval Minero under the governorship of Juan Romero Hicks.

promotion of municipal service early on, which was later consolidated into a dynamic support structure apparatus in the second wave of decentralization. Additionally, there was not a “power grab” among state level institutions in the sector in Guanajuato during the first wave or second wave. Instead, there was a high level of coordination between the state water commission, the state congress and the municipal service providers. Because the state government provided services directly for a brief period of time, they did not develop rent-seeking opportunities in service provision that was possible in the Veracruz case, nor did they create an antagonistic situation with municipalities as evidenced in the Mexico State case. In Guanajuato, the first wave of decentralization lasted a relatively short amount of time, conflictive interests did not become entrenched, and the state water commission was able to adapt to the second wave of decentralization reforms in a manner that created a strong support structure for municipal provision.

3.4. VERACRUZ STATE: LOW AMOUNT OF INSTITUTIONAL SUPPORT

3.4.1. Introduction

When Veracruz experienced the transfer of service responsibility to states in the first wave, the Veracruz state government responded by retaining water service responsibility for the state government and not decentralizing further to the municipalities. In this sense they created a “centralization” schema at the state level. While the state government provided water services directly to municipalities throughout Veracruz, they also had to allocate federal revenues to these water utilities, which were essentially under their domain. This created an institutional conflict of interest that would not be evident until the second wave of decentralization. The state water commission that formed served two conflicting roles: it was the sole state level service provider, as well as the sole hydraulic technical agent in Veracruz. The Veracruz state water commission’s director served at the pleasure of the governor, was the sole hydraulic technical agent in the state, and was able to administer services and manage revenues from service provision in an unregulated manner. The level of autonomy enjoyed by the state water commission during the first wave would be challenged during the second wave, but because the first wave lasted for twenty years and concentrated a large amount of fiscal resources and decision-making authority within the state water commission, the locus of power that developed during the first wave would be difficult to diminish during the second wave. The following section describes how the institutional configurations that were set in motion during the first wave of decentralization limited the creation of state support structures in the second wave.

3.4.2. First Wave of Decentralization in Veracruz

The state of Veracruz’s potable water networks had been operated by the federal government under the Hydraulic Water Ministry since the 1930s. These federal juntas were created throughout the state’s most important urban centers, and operated for decades through local offices (interview with Triena, 2008). In the three most important ports (Veracruz City, Tuxpan and Coatzacoalcos), another federal ministry⁹⁶ administered water services and exercised tax authority over goods entering and leaving the ports. Therefore, the water networks

⁹⁶ The Juntas Federales de Mejoras Materiales under the Secretaria de Patrimonio Nacional and later under SAHOP (interview with Kuri, 2008).

throughout the state were born under federal patrimony and financing, and were transferred in the nationwide decentralization initiative to the Veracruz state government in 1980.

On the onset of the first wave of decentralization, the Veracruz state government created a management system that aggregated all of the state's water networks under one state-level entity. The entity was a newly formed state water provider (Comisión Estatal del Agua Potable, CEAPA) that administered water service to the state's municipalities, in large part by adopting the structures of the federal juntas (interview with Triena, 2008). CEAPA was the first state level water provider which mostly serviced the state's urban centers (approximately 18) through "direct administration systems" that were set in city hall headquarters throughout the state. These administration systems attended to the public's water related needs, and were financed by the state government.⁹⁷

Although the Veracruz state government modified this management system in later stages of the first wave, they retained its principle feature: *direct* service provision by the state water provider to domestic networks throughout the municipalities within the state. In 1988, the Veracruz state government passed its first water law (Law 72), which created a new state water commission (Comisión Estatal de Agua y Saneamiento, CEAS) that had the same structure as the prior state water provider but instead of offices within city hall that managed water service, they created 39 local water utilities throughout the state's municipalities. These water utilities were physically located within municipalities but were financed and administered by the state government through its central headquarters in the state capital. Four regional zones were created and their directors provided the "final deciding vote" for local water utilities procedures and practices (interview with Triena, 2008). While the first state water provider, CEAPA, had been a haphazard management system with little policy formulation, the CEAS configuration created a more formal structure for water provision within the state, one that extended the geographical reach, and therefore the level of regional participation in water delivery, but retained management and financing decision making authority for the state government.

When other state governments, such as Guanajuato, were decentralizing service delivery responsibility to municipal governments during the 1990s, the Veracruz state water commission continued to provide services directly to municipalities during this period.⁹⁸ Therefore, the state government responded to receiving service responsibility in 1980 by creating a state-level centralization schema for service provision rather than decentralizing further to municipalities. This state-level centralization schema limited municipal autonomy by reinforcing the authority and strength of state governments to intervene in municipal affairs.

In short, the Veracruz state government responded to the federal decentralization transfer of service responsibility in during the first wave by replicating the centralization schema at the state level. By the time the Veracruz state water commission had consolidated its authority by the late 1990s, it managed all urban water utilities directly, financing them through user fees and state resources interchangeably. Despite espousing a policy of fiscal self-sufficiency, the state

⁹⁷ Veracruz's rural communities did not have water offices but they did have some (limited) support from CEAPA through a system of regional coordinators who provided occasional technical support.

⁹⁸ As in the other state cases, the Veracruz state water commission coordinated federal funds for hydraulic infrastructure construction, but also provided service directly.

water commission was free to administer services in an unregulated manner, set pricing and collection practices as they saw fit, and use the revenues collected from user fees discretionarily. No other state agency regulated them, and no municipality legally challenged the state's authority to provide services despite the fact that in other states municipal governments were enjoying municipal autonomy to provide services for over a decade. This state-level centralization period lasted for a period of twenty years. During this time, the state water commission was charged with distributing federal funds for infrastructure construction to water utilities, but at the same time these water utilities were run by the state government. This institutional arrangement of state intervention in municipal water and state control of the associated fiscal resources became embedded in the first wave over the twenty year period that it endured.

3.4.3. Second Wave of Decentralization in Veracruz

The second wave of decentralization began in 2000 with the passing of the new state water law (Congreso del Estado de Veracruz-Llave 2001b), and a reconfiguration of the regulatory frameworks that governed water management in Veracruz. These new initiatives were put in place in order to break the inertia of the state water commission and its centralization schema, and to promote cost recovery policies in water pricing and collections, as well as modernize operations. The Veracruz state water law was influenced by the model federal water law (*ley tipo*) that had been promoted by the National Water Commission in the 1990s.⁹⁹ Under the governorship of Miguel Aleman (1998-2004), a group of forward thinking hydraulic engineers were able to generate political support for the passing of a new state water law that invited private participation in the sector, created a new regulatory agency to oversee water provision, and modernized the practices of the state water provider in order to pave the way for further municipalization. While these new regulatory mechanisms were meant to modernize the sector and strengthen services provision in Veracruz, they had unintended consequences. The following section outline the new institutions that were created (the regulatory body, the reconfiguration of the state water provider, and a law that decentralized services to municipalities) as well as the unintended consequences engendered by this drastic shift in Veracruz water management practices during the second wave. Following the discussion of these new institutions and their unintended consequences, I outline the state-level support structures that emerged in the second wave of decentralization for municipal service provision.

The most novel institution that was created was the regulatory body (Consejo Veracruzano del Agua) that was charged with regulating services provision, which consisted of compiling performance indicators, tracking performance over time, and eventually sanctioning municipal water utilities for failure to comply with new norms and standards in services provision. This regulatory body was formed by a group of experts outside of the state water provider, who were interested in creating a regulatory body in order to both attract private investment as well as strengthen local service provision. At the time, regulating services would primarily mean regulating the practices of a powerful entity in Veracruz: the state water

⁹⁹ While the model water law had been promoted in the early and mid 1990s, another round was initiated in the late 1990s, targeted at states such as Veracruz that were "late developers" in water management (interview with Campos, 2008). Additionally, this water law was influenced by "policy diffusion" from other states who had created modernized water laws and were brought in to advise on the Veracruz water law (interview with Rodriguez, 2008).

commission. Governor Aleman threw his support behind the creation of the regulatory body and a new sectoral policy that promoted integral hydraulic management of water resources and conservation within the state.¹⁰⁰ A well known and respected hydraulic engineer (Rolando Springall) became the director of the regulatory body, which was institutionally under the jurisdiction of the state legislative branch rather than the executive branch, where the state water provider was housed. As such, the new regulatory oversight was well designed in Veracruz, and nationally lauded as the first institution of its kind in water management.

In conjunction with the creation of a regulatory body, the new law called for the state water provider/commission to develop more market-based practices in service provision, and to help promote water conservation and “best practices” in hydraulic management. The state water commission changed names (now the Comisión del Agua de Veracruz, or CAEV) again, and was effectively placed under the oversight of the regulatory body. Additionally, a corresponding law was passed a month later that allowed for further decentralization of water services to municipal governments (Congreso del Estado de Veracruz-Llave 2001a). The Veracruz decentralization law stipulated that municipal governments were entitled to administer services directly, but in order to do so, the mayor would need to petition the state government in writing (Article 4). This initiative allowed for transfers of service responsibility to large and medium sized municipalities throughout the state, some of whom formed corporatized water utilities and some of whom did not.¹⁰¹ However, many municipalities preferred to continue to let the state water commission administer services, and therefore the state water commission was caught between two competing obligations. First, the state water commission was the fiduciary agent for the federal government’s hydraulic infrastructure programs. This meant that the money that was allocated for hydraulic infrastructure *construction* and operation in Veracruz passed through the state water commission, who allocated it to different water utilities in the state. Previously these water utilities had all been part of the state water commission. But now there were some water utilities that belonged to the state and some that belonged to the municipalities, but the state water commission was now charged with allocating to both its own water utilities and those that belonged to the municipalities. This was an institutional conflict of interest—why would the state water commission choose to give money to water utilities other than its own?

These institutional innovations in the Veracruz water sector during the second wave of decentralization created two unexpected consequences. First, it created an institutional battle between the two state-level hydraulic entities: the regulatory body and the state water commission. After twenty years of being the sole hydraulic entity in Veracruz, the state water commission was accustomed to dictating the contours of water policy in the state, and enjoying the governor’s support as the technical agency in hydraulic affairs. From 2000 until 2004, the state water commission had no choice but to cede authority to the regulatory body who was in fact overseeing the state water commission. During this period, the state water commission complied with some regulations and requests for information from the regulatory body, but also worked behind the scenes to garner support for the abolition of the regulatory body. When the new governor, Fidel Herrera (2004-2010) took office, the state water commission was able to convince the new governor that allowing a regulatory body to exist that was not under his direct

¹⁰⁰ This system was called the Sistema Veracruzano del Agua, see Congreso del Estado de Veracruz-Llave (2001b).

¹⁰¹ Corporatized water utilities included: Xalapa, Boca del Rio-Medillin, Cordoba. Decentralized but not corporatized: Orizaba and Martinez del Torre.

jurisdiction and that limited the scope of “his” state water commission undermined his authority as governor (anonymous respondent, 2008). As quickly as it had begun, the regulatory body was disbanded in everything but name: its offices, personnel and budget were dismantled and the director of the state water commission became also the director of the regulatory body by 2006 (anonymous respondent, 2008). Therefore, the first unexpected consequence of the new institutional innovations was within state level conflict between these two hydraulic institutions and the eventual triumph of the state water commission as it worked to protect its authority and ability to administer services without regulation, in a discretionary manner.

The second unexpected consequence was that the state water commission became both “judge and defendant” in services provision. The state water commission was responsible for allocating federal revenues for hydraulic infrastructure to water utilities, but it was itself a water utility. Therefore, it could not be impartial in distributing federal resources throughout the state. Furthermore, because the state water commission managed to dismantle the regulatory body, the state water commission became the only hydraulic entity that was charged with implementing policies that would help support municipal service provision. In this task the state water commission was also not inclined to support competing service providers. It is in this panorama of institutional conflict, both within state government and across state and municipal governments, that the state level support structure for municipal service provision is crafted during the second wave of decentralization.

3.4.4. Support Structure in Veracruz

3.4.4.1. Legal Framework

The legal framework is quite strong in Veracruz, as of the passing of the 2001 State Water Law (Congreso del Estado de Veracruz-Llave 2001b). Veracruz’s water law was largely copied from the federally promoted model water law during a time when the governor was willing to invest political capital in establishing a more modernized legal framework for hydraulic management. The state law is innovative and forward thinking, even creating a regulatory body that is unparalleled throughout the country (Consejo Veracruzano), but, due to infighting between multiple state institutions and the whims of the incoming Governor Herrera in 2005, the regulatory body is dismantled as easily as it was created. The law promotes cost recovery pricing policies, regulation of municipal services by the regulatory body, a water management approach that emphasizes civic participation, and the promotion of systematic information tracking regarding multiple water uses. However, the law is ultimately not enforced in the weak institutional setting of Veracruz State, and is therefore little more than a legal construct with no regulatory teeth.

3.4.4.2. Promoting Cost Recovery Pricing Policies

Veracruz’s pricing and collection practices throughout the state reflects the conflictive nature of state level hydraulic management during the second wave of decentralization. Before it was dismantled, the regulatory body had created a price restructuring methodology framework that was specifically based on Veracruz’s local conditions. This framework was a guide intended to help water utilities move to cost recovery price setting with annual price updates. The

regulatory body initiated some training courses to aid water utilities in implementing these new practices. However, the regulatory body was dismantled before it had the opportunity to institutionalize these practices through a mandatory state-wide coordination of pricing policies, such as what occurred in the other two state cases.

The major roadblock in implementing these state-wide pricing reforms was the resistance of the state water commission to having their water prices overseen by either a regulatory body or a state wide review process (e.g., through state congress) that they did not control. Therefore, in Veracruz an ad-hoc pricing system continues to characterize municipal service delivery. Furthermore, the regulatory body had collected information on pricing and collection practices before they were dismantled, which allowed them to follow performance of municipal and state water provision and how this performance changed over time. Since the regulatory body no longer exists, the collection of critical fiscal information on both municipal and state service provision is no longer being gathered and monitored. Therefore, the pricing system in Veracruz for water delivery is ad-hoc, and not publicly available unless municipal governments choose to publish their prices independently. This panorama reflects a continuation of discretionary pricing policies throughout the state, and a lack of state level support for standardized pricing policies (anonymous respondent, 2008).

3.4.4.3. Providing Technical Assistance

The state water commission does not routinely provide technical assistance, training and certification or operational assistance to municipal service providers. Instead, it manages its water utilities under its norms and practices, and expects the municipal water utilities to be independent. The regulatory body provided some assistance, mostly in the form of “best practice” literature, compilation of hydraulic management literature, and tracking performance indicators, but these practices also ended once the regulatory body was dismantled. The support that the state water commission provides decentralized municipal water utilities is so poor that the federal government (through the National Water Commission) has created a few technical advising and certification programs through its regional Veracruz office to help fill this gap (interview with Esparza, 2008). Furthermore, the state water commission is extremely guarded about the level of support it provides municipal water utilities, and its federal resource allocation practices (author observation).

In conclusion, the first wave of decentralization in Veracruz created a centralization schema for water provision whose institutional configurations made creating state level support structures in the second wave very difficult. In contrast with the Guanajuato case, the Veracruz state water commission provided municipal service directly—during the first wave of decentralization—that lasted for twenty years. Therefore, there was an institutional conflict of interest in the second wave when the same state water commission was charged with supporting decentralized municipal service provision while simultaneously continuing to administer services to other regions through its own water utilities. During the second wave, the regulatory body that was created was unable to check the loci of power that had congealed within the state water commission, which created a fragmented and conflictive hydraulic policy setting within the Veracruz state government, and subsequently a weak support structure for municipal service provision. Because the state water commission provided services directly for twenty years, they

developed rent-seeking opportunities in service provision, and were unable to adapt to the second wave of decentralization reforms in a manner that created a strong support structure for municipal provision.

3.5. MEXICO STATE: MEDIUM AMOUNT OF INSTITUTIONAL SUPPORT

3.5.1. Introduction

When Mexico State experienced the first wave of decentralization, the state responded in two important ways that shaped the construction of support structures in the second wave. First, while the state government delivered services directly for only a brief period of time and quickly decentralized to municipal governments, the state government continued to provide bulk blocks of water to municipal governments, an arrangement that has lasted for over twenty five years. This arrangement has led to a historic feud between the state water commission and its municipalities as municipal governments have been unable or unwilling to comply with their payment obligations. The “seller”-“buyer” arrangement has resulted in an institutional conflict of interest that has made it difficult for the state water commission to create state support structures to strengthen municipal service provision during the second wave.

Second, the state government has been unable to craft a coherent sectoral policy at the state level because of multiple, competing hydraulic institutions that emerged in the first wave and continue to characterize the second wave of decentralization in Mexico State. Because the state water commission was not the sole hydraulic overseer and technical agent of the governor, important sectoral battles within state level institutions have been waged over hydraulic policy and control of federal resources. This lack of a coordinated state level policy has hindered the ability for the state government to provide municipal water utilities with a strong support structure. The following section describes how the institutional configurations that were set in motion in the first wave shaped the creation of state support structures in the second wave. Despite a lack of policy coordination at the state level, the Mexico State case is an example of a medium support structure because some support has been provided municipal governments (unlike Veracruz), but not to the extent that states support for municipal service provision is present in the Guanajuato case.

3.5.2. First Wave of Decentralization in Mexico State

Mexico State (Estado de Mexico) is located in Central Mexico and is the most populous state in the Republic with over 14.7 million (INEGI 2005). Before Mexicans began to migrate in large numbers to the United States, many citizens from surrounding states migrated to the Valle of Mexico, which encompassed Mexico City and its surrounding territories in Mexico State in the 1960s and 1970s (interview with Campos, 2008). Due to rapid urbanization¹⁰² and limited availability of water sources, Mexico State is the state with the least amount of water available per capita in the republic. To address the low water per capita availability in Mexico State and Mexico City, the federal government began an ambitious water pipeline construction project in

¹⁰² Mexico State was one of the largest growing states, growing at a rate of 3% when the nation was growing at 1.5-2% (INEGI 2005).

the 1970s to deliver water in bulk (*agua en bloque*) to Mexico City and Mexico State from the Lerma-Chapala river basin. While the federal government remained heavily involved in hydraulic infrastructure and water delivery by operating centralized federal juntas during this time, the federal government sought to enlist Mexico State in constructing the water pipeline and eventually operating it for its municipalities. In 1974, the Mexico state government created a decentralized hydraulic technical agency, (Comisión Estatal del Agua y Saneamiento, or CEAS),¹⁰³ to construct and operate the water pipeline under the jurisdiction of the state's Secretary of Public Works.

The first wave began in Mexico State in 1980, when the federal government transferred service responsibility to the Mexico state government.¹⁰⁴ Problems between Mexico State's water commission and the state's municipalities arose once construction of the bulk water pipeline was completed and the state water commission began to charge municipalities that received bulk water allotments. The state water commission became a seller of bulk water, and its clients, the municipalities, were unable or unwilling, to pay for the bulk water they received. The state water commission, once a powerful agency due to the large sums of money it received from the federal government for infrastructure construction, saw its fortunes turn as the construction funds dwindled and its economic livelihood became dependent on the small sums of payment from municipalities (anonymous respondent, 2008).

During the first wave of decentralization, the Secretary of Urban Development and Public Works positioned itself to receive federal funds for infrastructure construction by creating a Subsecretariat of Hydraulic infrastructure. The result was two competing hydraulic agencies under the same secretariat, both vying for the governor's support and access to federal resources. The state water commission directors, who had once had the governor's ear, were now less able to directly access the governor because the Secretary of Urban Development and Public Works began to block the state water commission's direct access to the governor (interview with Casteneda, 2008). The subsecretariat further weakened the state water commission by replicating some of its functions and diverting funds from them. At the same time, the state water commission was unable to generate sufficient revenues to operate the water pipeline because municipalities refused to pay their corresponding amount. Therefore, the state government had to subsidize much of the state water commission's operations during the second half of the first wave of decentralization in Mexico State (interview with Casteneda, 2008). During the first wave of decentralization, hydraulic authority is split in Mexico State between state water commission, as infrastructure constructor and operator, and the subsecretary of hydraulic infrastructure, officially charged with planning and coordination with municipalities.

Power relations. This is what happens within the state government between 1992-1995, with the Subsecretariat and with the Mexico State water commission. Therefore, the Secretary of Public Works has two entities dealing with water. The state water commission deals exclusively with infrastructure construction and operation, they are operators [of bulk water], and the subsecretariat deals with planning and coordinating with municipal water utilities. Despite this, the state water commission has always been very powerful... (anonymous respondent, 2008)

¹⁰³ CEAS is created by the Law No. 12, see Congreso del Estado de México (1974).

¹⁰⁴ The federal government continued to finance the construction of hydraulic infrastructure in Mexico State, but CEAS now became solely responsible for its construction.

In practice, the competing roles were redundant and unnecessary and illustrate the power struggles within Mexican State politics over control of federal resources during the first wave of decentralization. Furthermore, the institutional client-buyer arrangement between the state water commission and its municipalities in the first wave created tensions that would later affect the development of the support structure in the second wave.

3.5.3. Second Wave of Decentralization in Mexico State

The second wave of decentralization began in Mexico State with the creation of a legal framework and a pro-municipalization effort in 1999. In order to address the redundancy and internal divisions within Mexico State's hydraulic institutions, a 1999 Water Law was passed in Mexico State that fused the functions of the first state water commission (CEAS) and the subsecretariat of hydraulic infrastructure into a new entity: the Mexico state water commission (CAEM) (Congreso del Estado de México 1999).

Architects of the water law were primarily CEAS engineers who saw the need for a model water law based in part on the political climate of the mid 1990s. As municipalities in Mexico State became more politically diverse, the PRI-controlled Mexico state government was motivated to further institutionalize public policy initiatives in state laws that would secure mandates between state and municipal governments despite political affiliation. In short, CEAS wanted to protect its existence as an institution as well as mandate the responsibilities inherent to municipal water delivery in Mexico State by establishing a state water law. Architects of the water law were also directly influenced by the federal government's model water law and were advised by the model water law author, Urbano Farias, in the design of the Mexico state water law (anonymous respondent, 2008).

3.5.4. Support Structure in Mexico State

3.5.4.1. Creating Legal Framework

The Mexico state water law formally created a new agency to manage hydraulic resources in an integrated manner, the Mexico State water commission. In practice, the state water law changed very little about the structure or responsibilities of the state water commission, doing little more than changing the name from CEAS to CAEM, and retaining the same building, personnel, resources and functions with a few added functions ; a hydraulic infrastructure constructor and developer, with the majority of its functions being the transportation and delivery of bulk water to its municipalities (interview with Millan, 2008).

The Mexico state water law did not innovate beyond the federal government's model law, but did adhere to the general structure of the model law, with only a few additions. Therefore, the legal foundation for Mexico State's second wave decentralization reforms adhered closely to federal policy recommendations.¹⁰⁵ The 1999 water law permitted and promoted private participation in the sector, but did not create a regulatory body to oversee either public or private

¹⁰⁵ Like the Guanajuato state water law, the Mexico State law mandates that the state water commission promote a culture of water conservation, be a technical assistant to municipalities and perform some functions of integrated water resource management (in particular, undertaking and abiding by a state hydraulic plan):

service provision, as was the case in Veracruz. Rather, it proscribed some limited regulatory functions to municipal water utilities and the state water commission, following the language of the federal model law.

While the legal foundation for the decentralization reforms in Mexico State were closely aligned with the federal model law, coordination and integral management within Mexico State's hydraulic sector continues to be defined by institutional conflict and stalemate. While the 1999 Mexico State water law mandated that the state water commission be the sole hydraulic authority, the incoming PRI governor, Arturo Montiel Rojas (1999-2005), made substantial changes to state's hydraulic institutional arrangements. Montiel created the Consejo Consultivo del Agua del Estado de Mexico, a public think tank of a handful of engineers, headed by Alfredo Del Mazo (1981-1986), former PRI governor of Mexico State.¹⁰⁶ The Consejo Consultivo, rather than the state water commission, was instrumental in formulating an Integral Hydraulic Management Plan (Programa Hidráulico Integral del Estado de Mexico) along with the National Water Commission (anonymous respondent, 2008). Rather than address hydraulic management through a united front, one group of insider experts (the Consejo) were designing policy while another (the state water commission) was mandated to uphold some aspects of the policy, but not others.

The Consejo Consultivo served as a think tank for Governor Montiel, who saw taking ownership of the water issue as a means to propel himself onto a national political platform, "he saw in water a platform that could benefit him politically...so he organized world water forums, etc...to make a name for himself" (anonymous respondent, 2008). Working directly through the Consejo Consultivo rather than the state water commission better suited the governor because the state water commission was under-funded and ill-equipped to move quickly given its bureaucratic morass. Also, the state water commission was in conflict with its municipalities in part because it was unable to collect fees for the bulk water it provided them:

[working through] the Mexico State Water Commission would have sufficed. Nevertheless, the Mexico State Water Commission has two problems...first, it became filled with people; it is more people than what they need for what they are doing at the moment. Second, they became enemies of those who really operate water services—the municipalities. (anonymous respondent, 2008)

Rather than working through existing channels with the state water commission, Governor Montiel, and the Consejo Consultivo's president Alfredo del Mazo, circumvented the state water commission and pursued their own agenda of establishing a hydraulic state wide policy that would defend its water supply against Mexico City and other users, would promote self-sufficient water utilities, adequate water prices, and greater measurement of water supply (anonymous respondent, 2008). In sum, the Consejo Consultivo was a vehicle for the governor to access information regarding water issues in the state and gain national and international attention by pursuing a multi-faceted agenda in the sector. As part of Governor Montiel's legacy, in 2005 the Secretariat of Urban Development and Public Works changed its name to the Secretariat of Water and Public Works.¹⁰⁷ Although the Secretariat maintained all of its same

¹⁰⁶ Del Mazo is also the son of a former Secretariat of Recursos Hidráulicos. He is a businessman, but interested in water politics.

¹⁰⁷ The Secretariat of Urban Development and Public Works was created through the Ley Organica de la Administración Publica del Estado de Mexico on September 17, 1981. A Public Decree 189 changes the name of the Secretariat to the Secretariat of Water and Public Works on December 8, 2005.

functions, the name change made Mexico State the only state to have a Hydraulic Secretariat, increasing the state's visibility in hydraulic matters nationwide (interview with Hernandez, 2008).

3.5.4.2. Promoting Cost Recovery Pricing Policies

The financial viability of municipal water utilities in Mexico State is, like elsewhere, determined by the pricing structure and the collection capacity of water utilities. With respect to pricing structures, a state wide effort to standardize water and sanitation prices and create a systematic process of updating prices annually has been undertaken, but not by the state water commission. Although the Mexico State Water Law indicates that the state water commission should help promote financial viability in municipal providers, coordination of the issue by a third party was seen as necessary given the state water commission's feud with many municipalities. The Mexico State Treasury Institute was created by the Mexico State Congress in 2000 to provide training, professionalization and serve as advisor in public treasury issues in Mexico State.¹⁰⁸ In 2001, the Mexico State Treasury Institute began a water and sanitation services working group, attempting to help municipal water utilities and other service providers in the state standardize the tariff setting structure and "achieve tariffs that allow them to achieve self-sufficiency" (interview with Macay, 2008). The water tariff working group is composed of representation from municipal water utilities, and the treasury institute and the state water commission are seen as facilitators, allowing the municipalities, rather than the state, to dictate the price restructuring agenda (interview with Macay, 2008). The institute claims that 80% of the state's municipalities participate in the workshop¹⁰⁹ (interview with Cueto, 2008). The treasury institute has managed to do what the state water commission been unable to do: promote an initial interest in standardizing prices across political parties and gather accounting and commercial information from municipal water utilities. The state water commission was unable to access the accounting information prior to the workshops, because water utilities often think that disclosing their financial records will leave them vulnerable to being regulated and sanctioned. Worse yet, water utilities are hesitant to disclose improvements in their finances lest the state water commission force them to begin paying their long-standing debt (interview with Macay, 2008). However, the state water commission, as a participant in the workshops, is able to now access municipal accounting records. In this context, the treasury institute has provided a more neutral forum to debate and update the historically low and heterogeneous water prices in Mexico State.

Since the first wave of decentralization, municipalities in Mexico State have issued well below cost water prices, with heterogeneous concepts and little to no differentiation in price between different levels of consumption. Municipalities seldom publicly published their prices, and did not update prices annually, even to account for inflation (interview with Macay, 2008). Notably, prices were not set based on any sort of cost based methodology, or socio-economic study, instead, municipal presidents and water utility directors would set prices discretionally, and without a cost recovery pricing methodology. While Article 115 stated that prices set by municipalities were subject to state congressional approval, this process did not occur widely in

¹⁰⁸ Instituto Hacendario del Estado de Mexico. The Mexico State Treasury Institute was created by the Mexico State Congress in 2000 to provide training, professionalization and serve as advisor in public treasury issues in Mexico State.

¹⁰⁹ The water utilities that tend to not participate are smaller, rural ones that are less established or consolidated.

Mexico State before 2000 (interview with Cueto, 2008). Through the price structuring workshops coordinated by the Treasury Institute, Mexico State has made some progress in standardizing prices.

Since 2001, due to the workshops, prices for water and sanitation delivery have been published in the State Financial Code (*codigo financiero*), Mexico State's catalog of public prices that Mexico State and its municipalities may charge across all services and sectors. Each municipality, according to their socioeconomic conditions and water utility development, are divided into 5 different price categories. These prices have been divided by consumption blocks (e.g, 1-15m³; 15-30m³, etc) for water utilities that have meters installed, and general income categories for those who do not (e.g., low income, middle income and high income). The prices in the Financial Code are tied to the minimum wage (*salario minimo*) and therefore, although not indexed directly to inflation, have some periodic increases.¹¹⁰ The Financial Code does not bind different municipalities to charge homogenous prices across the same concepts (e.g., a water valve should cost the same amount in neighboring cities). Nevertheless, the Financial Code was a first step towards homogenizing price structures, and all municipalities are required to at a minimum align their prices to the Financial Code.¹¹¹ Water utilities may not apply water prices that are lower than what the Financial Code stipulates.

In 2004, the working group helped establish a mechanism for increasing tariffs in order to align them more closely to costs of service delivery. As an alternative to fixing water prices on the Financial Code, water utilities may propose a tariff increase that is higher than the Financial Code stipulates, if supported by a methodological study.¹¹² In 2008, 16 water utilities proposed increases (Comisión del Agua del Estado de México 2008). While these changes have created homogenization, critics have argued that the reforms are inadequate and do not obligate either municipal water utilities or state congress to promote financial viability through price restructuring. First, the minimum requirement of adhering to the Financial Code water prices may be problematic because the 125 municipalities in Mexico vary greatly in socioeconomic conditions, costs of service delivery and service development, suggesting that prices should be much more differentiated than they are currently (interview with Cuesto, 2008; anonymous respondent, 2008). Second, while water utilities are now strongly encouraged by the reforms to submit tariff change proposals that are accompanied by methodological studies, it is not mandatory since Congress argues that not all water utilities and municipalities can have the financial or administrative capacity to produce these studies (interview with Macay, 2008). Further undermining the role of Congressional approval is that Congress does not understand the content of these studies and is unable to independently verify them, calling on the Hacienda Institute, who helped design them, to verify their veracity (interview with Cuesto, 2008). Third, the state congressional approval process remains a discretionary one. Congress tends to not approve price increases that are disproportionate, for example higher than 15% because they fear political backlash (interview with Cuesto, 2008). Congress has not been uniformly convinced of

¹¹⁰ The problem with this is that indexing water prices to the minimum wage makes them beholden to political considerations insofar as minimum wages are based on political decisions.

¹¹¹ Although there are many independent committees that set prices independently and do not follow the *Codigo Financiero* in Mexico State. See Comisión del Agua del Estado de México (2008).

¹¹² A third tariff structure in Mexico is the prices charged by CAEM to municipalities for the mass water delivered to 58 municipalities or water utilities, in 3 different groups based on their socio-economic conditions (before there were 5). See Comisión del Agua del Estado de México (2008).

the need for increased water prices as was the case in Guanajuato, and therefore the initiative has had a limited effect on increasing and standardizing tariffs (interview with Macay, 2008). Fourth, the Financial Code stipulates that a municipality's city hall may apply numerous discounts for certain groups as well as during certain times of the year so as to increase general revenues¹¹³ (Financial Code, Article 129). While some discounts may be appropriate, they are not systematically linked to socioeconomic capacity to pay, and therefore in many cases they amount to major subsidies for people who could otherwise pay for service. Finally, while water utilities are prohibited from submitting tariffs lower than those in the Financial Code for Congressional approval, those who want to implement lower tariffs simply do not submit prices to congress because there is no regulation of the approval process in practice by any state authority (interview with Macay, 2008). Therefore, while prices are now routinely published and formal rules have been applied to the tariff restructuring process, loopholes exist that allow water utilities to continue to publish prices that do not always cover costs of service provision.

In conclusion, the price restructuring process has created a uniform price structure and homogenous prices, if insufficiently differentiated across municipalities and not always aligned with assuring costs are fully recovered. However, the price homogenization and cost recovery policies are often undermined by political interventions at both the congressional state level and in city hall. The largest impediment to achieving greater financial viability across Mexico State's water utilities on average is the low collection rates that plague the accounts of decentralized water utilities in Mexico State. In Mexico State, the state water commission has played a limited role in promoting financial viability in municipal water utilities, and has had to rely on a third party, the state's treasury institute, to coordinate and advise the price restructuring process. The price restructuring process has been heavily influenced by the direct participation of municipal representation in the price setting workshops, who have largely clamored for loopholes in the mandates in order to allow some discretion in price setting. Tellingly, no coordinated effort was led by either the state water commission or the treasury institute to petition for a more institutionalized price setting process; rather the state's municipalities have been able to lobby for a more ad-hoc process.

3.5.4.3. Providing Technical Assistance

While the 1999 Mexico State Water Law charged the state water commission with the task of playing a supportive and advisory role for the state's water utilities, the advisory task has proved difficult for the state water commission. Mexico State was able to provide a considerable amount of support to municipal water utilities through another institution in the 1990s, but after the initial period, the relationship between municipalities and Mexico State has soured with respect to hydraulic matters.

The tenuous relationship between the state water commission and municipalities is further worsened by the Mexico State Water Commission's inability to collect performance indicator information from its municipalities, in part due to different political party affiliation and in part due to the administrative turnover of personnel every three years at the municipal level:

¹¹³ Retired persons, pensioners, people with disabilities, widows, older people may have a 50% discount on their water bill.

The water utilities have yet to mature. They still see [the service responsibility] as something they have just achieved, and they do not share information easily. There have been cases, for example, where a new political party takes office every three years, and information disappears...that is, [the outgoing party] takes everything. (anonymous respondent, 2008)

Unable to access and compile data on municipal water utilities, the state water commission does not have a basis of information from which to base strategic calculations and further support strategies for municipal water utilities.

In conclusion, in 1999 the state water commission changed from CEAS to CAEM, and retained the majority of staff and resources, as well as the primary task of selling bulk water to municipalities who continued to pay minimal amounts, infrequently or not at all. However, now the state water commission was also charged with helping municipal water utilities develop further and was supposed to play a supportive and advisory role. The ongoing feud and institutional relationship between the state water commission and the municipalities made this new “advisory” task difficult,

...the municipalities can't stand the state water commission, the state water commission can't stand the municipalities; but the state water commission must live off of the [bulk water] payments...[the municipalities] are the clients, and fighting with your clients is not an agreeable situation...[they fundamentally fought] with those municipalities who were from different political parties. (anonymous respondent, 2008)

Both PAN and PRD municipalities have petitioned the National Water Commission to eliminate the Mexico State Water Commission. A powerful nucleus of municipal water utilities around the Valle de Mexico (the peri-urban surrounding of Mexico City) hopes to create their own committee to distribute water from Cutzamala River basin. Municipal water utilities claim that the state water commission is charging too much for the bulk water, and that they are providing a poor quality service inefficiently (anonymous respondent, 2008). PRD municipalities have also petitioned the National Water Commission to eliminate the state water commission, arguing that National Water Commission, not the Mexico State Water Commission is legally bound by the Constitution to manage water and that if the federal government were to take over the bulk water pipeline, these municipalities would support the endeavor by paying their water fees.¹¹⁴

The support structure provided during the second wave of decentralization has consequently been moderate compared to the other cases: an adequate legal framework exists, but has been undermined by the conflictive relationship between the state water commission and the municipalities. A third state level agency has been somewhat effective in promoting standardized pricing policies through price schedule updating, but this process remains highly politicized, in large part because it is more of a forum for municipal level interests regarding price setting rather than a coordinated policy of price standardization by a strong state water commission. The Mexico state water commission has developed virtually no technical assistance programs for municipal water utilities, in particular compared to the Guanajuato case.

¹¹⁴ *El Universal*, July 12, 2008.

3.6. CONCLUSION

This chapter argued that the decisions made by state governments during the first wave of decentralization affected the type of institutional support they were able to provide municipal governments during the second wave of decentralization. During the second wave, the federal government emphasized state support for municipal service provision. The extent to which state governments responded to this challenge from above varied greatly.

Factors such as institutional conflict of interest that developed during the first wave of decentralization among state water commissions and municipalities, as well as infighting and conflict across multiple state level agencies, affected the ability of state governments to provide support for market-based reforms in the water and sanitation sector.

Table 3.1 outlines how an institutional conflict of interest between states and municipalities during Wave 1 deepened depending on the amount of time it lasted, which later hindered the creation of support for municipal service provision in Wave 2. The strongest conflict of interest between states and municipalities were seen in Veracruz State and Mexico State, with virtually no conflict in the case of Guanajuato.

| | Guanajuato | Mexico State | Veracruz |
|---|---|---|--|
| A) Duration of Wave 1: | 1980-1986 (SHORT) | 1980-1992 (MEDIUM) | 1980-2000 (LONG) |
| B1) Did state directly provide services during Wave 1? | Yes | No | Yes |
| B2) How long did state direct services provision last? | 1983-1988 (0-5 yrs depending on municipality) *state water commission did not provide services | 0 | 1980-2000 (19 yrs) *state water commission did provide services |
| ^ | N/A | Yes | N/A |
| C2) How long did state selling water to muns last? | N/A | 1980-Current Year | N/A |
| B2+C2= How long did “institutional conflict of interest” last in Wave 1? | Short (>5 years) | Long (28 years) | Long (20 years) |
| E) Number of State-level institutional actors during Wave 1 (duplicated roles within state level) | 1) State Water Commission (CEAG) | 1. State Water Commission (CEAS) 2. Subsecretary of Hydraulic Infrastructure | 1) State Water Commission (CAEV) |

Because the Guanajuato State Water Commission was not providing water directly to its municipalities, and because there was only one state institutional rector of hydraulic resources in the state, the relationship between the Guanajuato State Water Commission and the state’s water utilities did not face a structural impediment to coordination during the second wave of decentralization, as Table 3.2 demonstrates. In contrast, the water commissions in both Mexico

State and Veracruz State did face structural impediments to coordinating with their municipal water utilities during the second wave of decentralization. In Veracruz State, the state water commission continues to administer services directly, and coupled with infighting between other state level agencies (the regulatory body), has not developed a united front when coordinating with the municipal water utilities. In Mexico State, the state water commission continues to be embroiled in disputes because of the nature of historic debts accrued the sale of bulk water allotments to municipalities. Infighting between government agencies in the state has also weakened the concentration of resources and policy setting agendas within hydraulic management in Mexico State.

| | Guanajuato | Mexico State | Veracruz |
|---|---|--|--|
| A) Is a new state level entity created that is new institutional overseer and promoter of municipalization? | No, institution remains the same, CEAG (state water commission), but creates an office specifically to support municipalization | Yes, CAEM (only name changes, all the same people, building, etc as the prior CEAS) | Yes, the Regulatory Body called the Sistema Veracruzano |
| A1) When is new entity created? | 1996 | 2000 | 2000 |
| B) When is Legal Framework established for Wave 2? | 2000 Integral Hydraulic Management Law | 1999 Water Law passed | 2000 Water Law Passed |
| C) Number of State-level institutional actors during Wave 2 | 1) State Water Commission (CEAG) | 1. CAEM (formerly CEAS) 2. Secretariat of Water and Public Works (formerly Subsecretary of Hydraulic Infrastructure) 3. Consejo Consultivo (think tank group of governor). Governor works directly through Consejo rather than CAEM... | 1) State Water Commission (CAEV) 2) Regulatory Body (Sistema Veracruzano) |

Other factors, such as partisan politics, influences the outcome but does not directly, or alone, explain the level of institutional support states developed for the municipal water utilities. For example, both Guanajuato and Veracruz states had little political competition within the state during the period under study, the first being primarily PAN and the latter being primarily PRI. Yet, Guanajuato's state level support was strong and Veracruz's was weak. Mexico State had a high amount of political competition during this time—the state government has been PRI, but urban municipalities throughout the state have been from the PRI, PAN and PRD. In particular, coordination across municipal and state policymaking in Mexico State seems to have been plagued by partisan battles, but it is difficult to disentangle the effects of partisan battles with the conflict caused by the accrual of historic debts. Factors such as weak institutional capacity, bureaucratic infighting, and different levels of corruption and cronyism vs bureaucratic professionalization at the state level, shape how state water commissions responded to the

decentralization mandate from the federal government during wave 2. However, this chapter emphasizes the effect of decisions made during wave 1 on wave 2 in order to highlight the structural impediments, or lack thereof, which helped shaped the degree of institutional support developed in wave 2, as illustrated below in Table 3.3.

| Table 3.3 Variant Levels of Institutional Support across State Cases | | | |
|--|------------|--------------|------------|
| | Guanajuato | Mexico State | Veracruz |
| Creates Legal Framework | Yes—Strong | Yes—Strong | Yes—Strong |
| Promoting Rule-Based Fiscal Policies | Yes | No | No |
| Providing Technical Assistance | Yes | No | No |
| Overall Degree of Support Structure | High | Medium/Low | Low |

Chapter Four: Guanajuato State's Municipal Cases in Comparative Perspective

4.1. INTRODUCTION

This chapter compares the three municipal cases within Guanajuato state (Leon, Irapuato and Celaya), which, with respect to the nine municipal cases in the dissertation, reflect a relatively strong mayoral-business coalition and corresponding high reform outcomes. The dependent variable scores for each of these three cases are Leon-High (20), Irapuato-High (18), and Celaya-High (14) (see Appendix 4.1). Because both the state governments and municipal governments have an important role to play in service provision, the explanatory variables leading to the municipal reform outcome operate at both the state government level and the municipal government level, respectively.

Two explanatory variables lead to municipal services reform in the water and sanitation sector. The first explanatory variable that leads to water services reform is the strength of the mayoral-business coalition that is created in each of the three municipalities within the state, which will be the principle concern of this chapter. For each of the three municipal cases, a two-step approach will be applied. First, I analyze the strength of the mayoral-business coalition, based on a mayor's constituent base and the extent to which local business is water-intensive. If a mayor's constituent base is primarily composed of business sectors and upper and middle class consumers, the mayor may be able to reap political benefits from a successful reform process, claiming credit for reforms that help establish their political career, promote the party, and position them favorably within the party hierarchy. In contrast, if a mayor's constituent base is primarily composed of vulnerable populations such as the urban poor, reforming public services may be more politically costly than beneficial because these constituents are most hurt by policies inherent to the reform process, such as price increases and suspension of service for non-payment.

In the cases of Leon, Irapuato and Celaya, pro-business parties oversaw reforms in the water sector. In Leon, first PRI and later PAN mayors supported the reform process. In Irapuato and Celaya, the PAN's taking over the municipal seats in the late 1990s/early 2000s drastically changed the direction of the water services, and catalyzed extensive reform processes in a short amount of time. These pro-business parties counted on the support of business sectors that were water intensive. However, the extent to which these cities' business communities actively participated in the reform process varied across the three cases. In Leon, the business community initiated, structured and sustained the reform process over time, running the board of directors with the support of, but little direct political interference from, the mayor. In Irapuato, business leaders participated in the board of directors, but mayors were more active, and in Celaya, both mayors and the business community supported the process, but technocrats within the water utility were the primary agents of reform, and state-level support played a larger role.

Second, I analyze how after the mayoral-business coalition is established, technocrats within the water utility are able to resist backlash against painful aspects of reform (such as cost recovery measures) in order to enact reforms along three dimensions: fiscal (cost recovery), operational, and institutional. In the second step of analysis for each of the three cases, I will

explain the extent to which would be reformers took advantage of the state level resources available to them in Guanajuato, and how that shaped the outcome in question.

4.2. GUANAJUATO STATE SUPPORT (HIGH)

State level institutional support for municipal service provision is the second explanatory variable under study, providing a “necessary but insufficient” condition for municipal rule based reforms—in the case of Guanajuato, this institutional support is high. As noted in Chapter 3, Guanajuato’s institutional support for local water provision is high across three dimensions: creating a legal framework for municipal service provision (legal support), promoting pricing policies (fiscals support) and providing technical assistance to municipal service providers (technical support).¹¹⁵ The majority of these “state support structures” come from the Guanajuato state water commission, which, as described in Chapter 3, never provided municipal service delivery directly but instead formed as an institutional rector of hydraulic matters in the state. Although there is no formal regulatory institution in the state that monitors and sanctions service providers or engages in consumer protection, Guanajuato’s state water commission does provide a form of regulation for water service provision by supporting municipalities in technical and pricing matters, as well as providing an adequate legal framework for rule-based municipal provision. Because Mexican municipalities suffer from short policy horizons –due to three year municipal administrations with no re-election and low levels civil service training–, state governments, who have access to more federal funding, a civil service program, and are six years long, can extend the municipal policy time frame by providing resources that fill in knowledge and experience gaps for municipal bureaucrats. As described in Chapter 3, Guanajuato’s State Water Commission provides these resources better than any other state under review, and is among the best in the country.

4.3. LEON: HIGH REFORM CASE

With a water intensive business community that was strongly participatory, Leon enjoyed a high level of business support and a medium high level of mayoral support for reforms. These factors, coupled with a strong level of state support (that was not always utilized), led to a high level of reform—Leon scored 20 on the municipal policy reform index.

Leon is the largest and most prominent industrialized city in the central highlands state of Guanajuato, and one of the most important industrial hubs in the country. Beginning in the 1940s, water and sanitation services were administered by the federal government through a *federal junta* in Leon.¹¹⁶ Coverage was limited, service intermittent and prices were low during this time (interview with Polo, 2008). Federal service provision ended by 1980 and the Guanajuato state government took charge of service responsibility for a brief period of time, quickly transferring service responsibility to Leon’s municipal government by 1983.¹¹⁷ The municipal government

¹¹⁵ See Chapter 2 for the origins of Guanajuato’s high level of institutional support for municipal water service provision.

¹¹⁶ The federal junta was administered by the Ministry of Hydraulic Resources (1946-1976), see Chapter 2. Prior to the 1940s, a municipal water utility had administered services, “Ramo de Aguas Municipales.”

¹¹⁷ On December 9, 1983, Governor Enrique Velasco Ibarra decentralized Leon’s water service to the municipality, which created a water utility (Sistema de Agua Potable y Alcantarillado de León).

assumed responsibility for service provision, and created a water utility, SAPAL (Sistema del Agua Potable y Alcantarillado de León), decentralized and institutionally autonomous from the municipality by the mid 1980s (interview with Baez, 2008; interview with Polo, 2008). Despite the protracted nature of the decentralization process, the Guanajuato state government transferred service responsibility to many large municipalities throughout the state quickly after receiving the new service responsibility from the federal government. As such, Leon was an early beneficiary of decentralization, receiving service responsibility in 1983, well before many municipalities in the state and a decade before the National Water Commission's policy recommendations had been formally instituted.

4.3.1. Leon's Mayoral-Business Coalition

A strong business community has been present in Leon for several decades. Leon is the northern most link to Guanajuato's industrial hub and the center of the state's economic wealth—a position achieved in great part due to the thriving footwear leather industry that supplies both the domestic market and international exports (Shirk 1999, 51). The reform process was initiated in the late 1980s by business leaders who were concerned about the lack of adequate water provision and basic services in Leon (interview with Polo, 2008; interview with Torres, 2008). The business community saw inadequate water provision as a threat to their businesses and the community at large.

[At this time] Mario Plascencia is on the board of directors and he becomes president of the board of SAPAL. He has people dispersed throughout different industries who are aware of the [vicious] cycle...there is a lack of water in the city, it threatens industry, the development of the city is very slow--in Leon there were [few] hotels, restaurants, services...(interview with Polo, 2008)

As industry developed in Leon, developing water provision became more important. Economic census data indicates that the city's industrial production is high, and is heavily reliant on water. For example, industrial manufacturing composes 45% of Leon's municipal economy, and leather curing—a heavily water reliant industry—composes 49% of the city's industrial production (INEGI Economic Census, 2004). Other water reliant industries, such as plastics, alcohol/tobacco, and food production, are also heavily reliant on water, totaling a sizable share of municipal industrial production that is heavily reliant on water—40% (INEGI Economic Census Data, 2004, Pacific Institute's Water Program). In the late 1980s, business leaders drawn from these industries, particularly the leather curing industry¹¹⁸ organized a group of entrepreneurially oriented industrialists and established a board of directors for the nascent water utility with a peculiar institutional structure.

The institutional structure of the board of directors¹¹⁹ checked political intervention and partisanship by allowing only two politicians to serve on the board. The board limited the municipality's representation to two city council members, specifying that the remaining seven

¹¹⁸ Led by Mario Rodrigo Plascencia, son of Roberto Plascencia Gutierrez, founder of FLEXI footwear, an internationally renowned footwear company based out of Leon, Guanajuato. See *Lider Empresarial*, October 2006.

¹¹⁹ See Sistema de Agua Potable y Alcantarillado de León (2008).

members be drawn from civic society and one each from Leon's key business associations,¹²⁰ and barring the two municipal agents from serving as the board's president. Most importantly, the mayor was banned from sitting on the board. No board member could simultaneously serve leadership positions within any political party during their tenure on the water board. Such parameters limited excessive partisan politics in the board's leadership. Furthermore, board members and the board president could serve for two administrations but the turnover of board members was staggered so that only 50% of the board could be replaced at once. This institutional structure ensured that although there would be turnover in the board, it would not be abrupt. The board would select the water utility general manager, dictating the long-term planning of the water board, but leaving operational decisions to the general manager. While the institutional structure of the board was well designed to guard against mayoral mishandling, the institutional arrangements would have been insignificant if the business community were not strong enough to ensure that the new rules of the game would be followed, which meant both limiting the mayor's influence as well as ensuring his tacit support.

While typically mayors are wary of undertaking reforms that will be politically costly to the mass public (or constituents), such as allowing for the increase of water prices or allowing for the implementation of rigorous water fee collection practices, in Leon, mayors have found it to be more politically valuable to support the business community:

City hall could [take away the board of director's authority] with one single act...take back the water utility and make it an office in city hall. They could do it. But they have not done it because on the board of directors there have always been opinion leaders. [Those board members] appear to be ordinary people but they are not, they do not come from just anywhere...that is, to put 9 of the 11 people on the board who are all opinion leaders, where they all have a particular authority [in the community]...going against their policies would be more politically costly [in Leon] than confronting the mass public (interview with Torres, 2008).

In particular, Leon's mayors have been closely aligned with the business community, belonging predominantly to the PAN party, and many of them either belonging to the business community or sharing close, personal ties to the business community. For example, when founding member of SAPAL's board of directors, Mario Plascencia, began to implement cost recovery measures in the late 1980s, he was supported by the current mayor, Carlos Medina Plascencia (1988-1991), who was not only from the same political party, but also a relative. Mayor Carlos Medina Plascencia was inclined towards supporting market-based reforms in the sector given that he was an engineer, had a business background, and belonged to a political party that was beginning to promote these types of reforms. Reforms in this sector helped establish his initial political career as mayor, he later went on to become senator and interim governor of Guanajuato (1991-1995), continuing to be an active member in the PAN party.¹²¹

As municipal administrations have come and gone in Leon,¹²² the SAPAL board has operated independently of mayoral pressure, particularly in daily management decisions.

¹²⁰ The following associations: Leather Curators, Footwear, Commerce, Construction, Professional College and Camara Nacional de la Industria de la Transformacion (CANACINTRA) and Centro Patronal de Leon (COPRAMEX).

¹²¹ In 2005, Carlos Medina Plascencia ran for president of the PAN party but lost to Manuel Espino.

¹²² Leon's mayors since the initial late 1980s reform period have been from the PAN party: Ing. Carlos Medina Plascencia (1989-1991), Lic. Facundo Castro Chávez (1991), Ing. Eliseo Martínez Pérez (1992-1994), Ing. Luis M.

However, Leon's mayors have found it necessary to coordinate with SAPAL leadership in order to finance projects of mutual interest (interview with Guerrero, 2008). Coordination between city hall and the SAPAL board has also been tightly bound together due to a similar stake in the economic development of the city. Observers note that mayors and SAPAL board presidents from different political parties have been able to work together on joint infrastructure and financing projects (interview with Guerrero, 2008).

A final actor in the service delivery process that has contributed to the consolidation of the reform process in Leon's water utility is the water utility's general manager. In the case of Leon, the powerful board of directors single handedly selects the general manager for the water utility, without input from the mayor. Because the board of directors rotates out 50% of its members at a time, there is a rotation in hiring decisions every six years, rather than the three year terms more common in Mexico in water utilities where mayors select the general manager. With the institutional structure for operational continuity in place, in 1992, the board of directors hired Felipe Polo, a general manager who went on to retain his position for fifteen years. With the retention of Felipe Polo over multiple mayoral administrations, technocratic expertise was protected from political intervention, and allowed to blossom and become consolidated. While the board of directors and its president were the general manager's "boss," the areas of responsibility were carefully delineated and respected. The board of directors set the long-term planning decisions at the water utility, while operational decisions were left to the general manager. Neither was influenced by the municipal electoral cycle, campaign promises and obligations, or partisan politics between rival political parties because of the distance created between the water utility's management and city hall. Furthermore, as the general manager began to demonstrate results and amassed an impressive performance record,¹²³ he was able to convince subsequent board members to keep him on, which subsequently meant personnel retention throughout the water utility (because new general managers tend to hire new staff). Personnel retention was an important component of the reform process that was a direct consequence of the strength of the business community in Leon.

In sum, strong and participatory elite leadership from the business sector, coupled with the tacit support from a series of pro-business mayors founded and sustained a strong mayoral-business coalition over time in Leon. The business community proved a strong and enduring pressure for reform, one that the city's mayors would come to respect and consider an important constituency. While Leon was the birthplace of Mexico's conservative business party (PAN), both PRI industry leaders and PAN industry leaders have presided over the SAPAL board. By minimizing partisan politics and rallying around a reform agenda that emphasized eliminating city hall's direct influence (only two politicians are allowed on the board of directors), and maintaining coordination with city hall on joint projects, leaders from both parties (PAN and PRI) have contributed to insulating the water provision process from excessive political intervention. It is important to remember that mayoral-business coalitions need to be sustained over time.

Quiroz Echeagaray (1995-1997), C.P. Jorge Carlos Obregón Serrano (1998-2000), LAE Luis Ernesto Ayala Torres (2000-2003), Sr. Ricardo Alaniz Posada (2003-2006), Lic. Vicente Guerrero (2006-2009). See www.leon.gob.mx.
¹²³ Polo and subsequent general managers paid special attention to their relationship with opinion leaders (influential members of the local community, largely from key business sectors), incorporating them into the decision making process and assuring their political support in the reform process. Specifically SAPAL holds forums with these leaders and circulates biweekly memos outlining operations and strategies to opinion leaders well in advance of dissemination to a wider audience.

Therefore, as we move to explaining how a strong mayoral-business coalition has led to an extensive reform outcome, the market-based reform agenda continues to be sustained by an established business community and opinion leaders, with the continued compliance of Leon's mayors.

4.3.2. Municipal Policy Reform Outcome

Turning to the second step in the analysis, the following section describes how a strong mayoral-business coalition led to a high municipal policy reform outcome in Leon's water and sanitation sector. I define municipal policy reform in water and sanitation delivery as a codification and standardization of norms and practices in three areas of water and sanitation provision: fiscal, operational and institutional practices. As Appendix 4.1 shows, the dependent variable index score for Leon's municipal policy reform outcome is a 20, or high along three dimensions of reform. While explaining how a strong mayoral-business coalition led to an extensive implementation and consolidation of municipal policy reform, I will explain the extent to which would-be reformers took advantage of the state level resources available to them in Guanajuato, resources that were particularly helpful during the implementation stages of reform.

4.3.2.1. Creating Cost Recovery (Fiscal) Policies

The first component of the outcome in question is standardizing pricing policies. SAPAL began implementing new, elevated and uniform prices in the late 1980s, well before this type of policy had become a state wide or federal level initiative. The initial price restructuring agenda had two key components that were innovative for their time: prices were indexed¹²⁴ and prices were consumption based. Indexing was important because it avoided drastic, large annual increases in favor of gradual increases that were less disruptive for the consumer, mitigating social backlash against the water utility. Transforming the ad-hoc price schedules into consumption based blocks created a cross-subsidy whereby large, industrial consumers subsidized smaller, residential consumers. SAPAL's price restructuring initiative made them trailblazers as the majority of other water utilities continued to use fixed, non-consumption based price structures.

During the 1988-1991 board of director's administration, the board of directors preemptively coordinated a large public relations campaign to introduce the concept of price uniformity and indexed increases to the public, advertising that increased revenues would mean improved service, and tying the water utility's development to Leon's development as an urban center (interview with Torres, 2008). The public campaigns pitted the price of common every day items—a kilo of jam, a kilo of avocados, a liter of brandy—to the cost of a cubic meter of piped, clean water (Sistema de Agua Potable y Alcantarillado de León 1992, 21). The comparison drove the message home: piped water has a cost, and this cost generates a price that is much less than what consumers pay for arguably less valuable everyday goods. Resistance to price increases was minimal and not collective. Price increases were not associated with the

¹²⁴ Indexed prices means that prices are not fixed in time, but automatically change along an index of prices. For example, water prices may be indexed to the minimum salary, the cost of service provision, or inflation. Indexed prices typically change periodically (daily, weekly or monthly), rather than periodically and irregularly based on political considerations.

mayor but with a technocratic process undertaken by the water utility, which minimized political costs assumed by the mayor in allowing reforms to occur under his jurisdiction.

SAPAL began a transformative period in its development following the initial price restructuring reforms. As mentioned earlier, the board of directors hired an experienced administrator as the general manager in 1992, who took a major leadership role in the organization. The board of directors, made up of prominent business leaders in the community, protected Polo from replacement and allowed him to take at times drastic measures to implement cost recovery policies. Polo and his administration were able to further restructure SAPAL's price catalog and index prices to the costs of operation in the mid 1990s, which was unheard of at the time in Mexico (interview with Polo, 2008). Cost recovery pricing policies meant that Leon's water utility was no longer subsidizing water service, but rather charging consumers what it cost them to deliver service, which generated revenues for re-investment back into the piped network.

While price increases were seen as socially disruptive and politically costly in many other municipalities, the strength of the reform coalition was so strong in Leon that their backing was more important for a mayor than placating the electorate who might be alarmed by price increases (interview with Torres, 2008). The Guanajuato state water commission, shared the water price restructuring agenda that SAPAL implemented, launching a state-wide price restructuring initiative after SAPAL had begun its reforms. However, as the state water commission petitioned the Guanajuato state congress to establish price uniformity requirements across all 46 municipalities in the state in 2000, Leon was an important reference point for the initiative. The state water commission was able to occasionally support SAPAL, although SAPAL quickly became a wealthier and more powerful institution than even the state water commission. As will be seen in subsequent chapters, the mere fact that the state water commission, and the state congress, did not serve as a source of antagonism for SAPAL, but rather later enacted a similar state wide cost recovery initiative, helped support and further legitimate the municipal policy reform initiative in Leon.

While regularizing price schedules was a first step, price increases alone would not increase the organization's revenues given SAPAL's historically low collection rates. Fee collection practices, once discretionary and non-transparent, would need to become a uniform practice that promoted bill payment. SAPAL initially used three techniques to minimize conflict and increase collection rates, later building on these efforts and innovating beyond these techniques. First, SAPAL initiated service suspensions for consumers who were past due on their water bills for three months or more; a practice uncommon at the time in Mexican public administration. Second, SAPAL "divided and conquered" their consumer base by sporadically dispersing service suspension for non-payment throughout the city rather than concentrating it within one or two neighborhoods at a given time. By dispersing service suspension for consumers who were past due on bills throughout the city, SAPAL deterred organization and collective protest around service suspension for non-payment. Instead, customers who had their service suspended because they were substantially late in their payment came individually to the water utility to present their case and resolve the issue (interview with Torres, 2008). Third, SAPAL "met consumers halfway," re-instating service when an initial portion of the debt was

paid, and devising individual payment plans suited to individual ability to pay (interview with Ordaz, 2008).

Throughout, the water utility attempted to eliminate discretionary fee collection practices, which favored well-connected consumers and hurt lower income consumers who lacked the professional connections necessary to avoid paying for service (interview with Polo, 2008). City council members who did not pay found their service disconnected, powerful industry leaders were cut, and even industrial and commercial centers behind on payment found their sanitation connection suspended (interview with Torres, 2008). As SAPAL grew, their collection practices became stronger and more transparent. Better record keeping eliminated the corruption previously inherent in new connection policies: historically consumers would pay for new connections and staff was not systematically held accountable for the revenue collected (interview with Polo, 2008). SAPAL also initiated programs to increase the ease of payment, increasing the number of bill payment centers throughout the cities, later adding electronic forms of payment and eventually online payment. As SAPAL's public image grew, they innovated beyond punishing for non-payment and began to reward for timely payment by raffling high end household items (televisions, refrigerators, stereo systems) and cars to consumers with on-time payments (interview with Padilla, 2008). SAPAL's collection practices emphasized the elimination of discretionary practices and cronyism, increased ease of payment, and promoted payment through both inducements and deterrents.

4.3.2.2. Creating Reforms in Operational and Institutional Practices

The second and third dimensions of the dependent variable are operational and institutional practices. In this study, operational practices refer to important tasks related to maintaining the network infrastructure (such as implementing leaks eliminations campaigns, regularizing pressure, implementing water quality testing) (see Appendix 4.1). Institutional practices refer to administrative tasks that pertain to human resource issues (such as educating and training workforce, implementing consumer outreach programs) (see Appendix 4.1). These practices are the cornerstone of a public utility and when they are discretionarily managed, service quality suffers.

In the early 1990s SAPAL's service continuity was poor (typically customers received water every three days, (interview with Baez, 2008)) and water quality was substandard. Implementing reforms in SAPAL's operational practices was certainly a gradual process, getting actively underway a few years after price standardization policies began. Using funds from increased revenues as well as some federal funding (interview with Polo, 2008),¹²⁵ SAPAL invested in longer term integral projects that yielded results after a couple of years. Leaks in the network decreased by over 80% in fifteen years, and even though the amount of new users added to the network more than doubled, the total amount of water delivered to consumers decreased by 17% because SAPAL reduced the amount of water lost through pipes (interview with Polo, 2008). SAPAL employed extensive network automatization techniques ("sectorization") that

¹²⁵ The feedback loop between increased revenues and service improvements cannot be understated. As SAPAL's revenues grew their access to federal resources exploded, and they were able to access federal funding for infrastructure construction. With this money, they were able to improve their network and later enter into other programs to build two sanitation treatment plants and begin treating a portion of the city's sanitation.

served to electronically detect leaks and illegal connections, improve water pressure and extend the life cycle of the network infrastructure. As they were able to recuperate more “lost water,” continuity in service increased, decreasing interrupted service from 40% to 3% (interview with Baez, 2008). Water quality labs were installed and routine testing norms were implemented and widely advertised. By 2003, SAPAL won state level awards for water quality from the State Secretary of Health as well as national awards from the Mexican Certification Boards (Sistema de Agua Potable y Alcantarillado de León 2004). Finally, as of 2010, SAPAL has achieved the uncommon feat of treating 100% of its sewage, operating 8 plants with a total treatment capacity ranging of 2860 l/s of wastewater (www.sapal.gob.mx).

As SAPAL’s influence grew, it began to play a major role in the urban planning of Leon. Previously, the municipality had granted development licenses to developers regardless of the viability of connecting the new development to the municipal hydraulic grid. This common phenomenon in Mexico typically leads to unplanned settlements, ‘unserviceable’ neighborhoods, and tensions between developers, low income settlers, the municipality, and water utilities. SAPAL was able to coordinate with the municipality and influence the development patterns of Leon, assuring that new settlements could be provided service.

Turning to the institutional aspects of reform, the Polo administration made great strides in professionalizing SAPAL’s workforce. During the initial years of the Polo administration, the biggest hurdle had been lack of education and professionalization of the staff, who were semi-illiterate, with at most a high school diploma, and no administrative training (interview with Polo, 2008). The Polo administration, with resources from the National Water Commission, installed administrative training workshops for each area within the water utility. They also created specializations, which had not previously existed, and reconfigured the organizational structure of the water utility. This new structure better aligned specific talent with narrower tasks which allowed both accounting and operational areas to develop longer term, pre-emptive work plans, rather than waiting “for the problem to emerge” (interview with Polo, 2008). SAPAL began employing a wide array of specialists and professionals: economists, accountants, and administrators, “the water utility was not just full of valve changers anymore” (interview with Polo, 2008). SAPAL also raised wages and provided social security and basic safety nets, decreasing corruption at work, and creating a more long-term work plan and vision rather than the uncertainty and low work productivity that results when employees feel that their jobs are at risk. The Polo administration estimates that the initial process of administrative overhaul and professionalization lasted 6-7 years, eventually the water utility “operated on its own” and the directors could focus on long-term planning rather than intervening in daily operations (interview with Polo, 2008).¹²⁶ Standardizing operational practices at the water utility meant reducing rent seeking behavior and institutionalizing the reform initiative:

It all goes together...it [becomes] so automated that it is bigger than one person. In other words, you can pay the [service suspension employee] to not cut off your service [for non payment], but tomorrow the

¹²⁶ As part of their courting of an international image as well as interest in motivating employees, SAPAL created institutional continuity with respect to administrative training by implementing ISO (International Organization for Standards) 9000 programs and Environmental Management ISO 14001 certifications. See Sistema de Agua Potable y Alcantarillado de León 2004.

other guy on duty is going to come by and try to cut off your service again...it is not that bribery could not happen, but the next day you are in the same boat. (interview with Torres, 2008)

4.3.3. Conclusion

Leon is a case of a strong mayoral-business coalition leading to a high municipal policy reform outcome. The mayoral-business coalition was dominated by the interests and political clout of an elite civic leadership—businesspeople and opinion leaders—who forged a reform agenda and insulated it from direct political manipulation, while simultaneously garnering political support for the reforms. Timing plays an important role in the outcome in question, but longevity of a policy alone does not improve service; rather sustained pressure for reform over time leads to improved service provision, as the Leon case demonstrates. A strong mayoral-business coalition was sustained over time also in part due to the success of the reform agenda: the general manager, Felipe Polo, and his staff enacted a series of reforms so pervasive and successful that he outlasted three board presidents and five mayors, running the water utility for fifteen years. This feedback loop between mayoral-business support for reforms and municipal policy outcomes demonstrates the need for a long-term policy horizon in municipal service provision.

In shifting towards municipal policy reform, SAPAL did not utilize state level resources to the same extent as other municipalities. Their independence was largely due to the fact that they began implementing reforms before the Guanajuato state water commission had a wide variety of resources available. However, SAPAL did work with the state water commission on standardizing pricing policies as a state wide initiative, and benefited from Guanajuato's passing of an innovative water law in 2000.¹²⁷ However, because SAPAL had access to its own resources early on, it did not draw on the state's technical resources such as professionalization and technical operations courses. Because SAPAL was an early reformer, it worked more closely with the federal government who had more clearly defined programs and guidelines in the early 1990s than the Guanajuato state government. SAPAL's general manager also worked closely with consultants, who helped disseminate ideas and policy initiatives throughout the state, in order to fast track reforms in the 1990s. It should also be noted that both PRI and PAN businesspeople have run the water utility's board of directors, yet both have come from a business oriented background.¹²⁸

4.4. IRAPUATO: HIGH REFORM CASE

With a water intensive business community, Irapuato had a medium high level of business support and a high level of mayoral support for reforms. These factors, coupled with a strong level of state support, led to a high level of reform—Irapuato scored 18 on the municipal policy reform index.

¹²⁷ See Chapter 3 for details on the Guanajuato State Water Law, which gave a legal framework for market-based reforms in the water and sanitation sector.

¹²⁸ Although partisan politics and a pro or anti business ideological orientation may be correlated, they do not necessarily go together. This is particularly true in Mexico, where the business party is typically seen as being the PAN, but where the PRI is divided between pro business technocratic reformers and more populist leaning politicians.

As the second largest city in the state of Guanajuato, Irapuato has become an important metropolitan area in the state, its population growing at a rapid rate in the last twenty years. Irapuato's water utility was originally a *federal junta*, administered by the federal government until the 1980s, before being transferred to the state government and then quickly decentralized to the Irapuato municipality by 1984. Soon thereafter, the municipal government created a decentralized water utility which was institutionally separate from the Irapuato municipality. Irapuato, like Leon, was also an early decentralizer, receiving service responsibility relatively early compared with other medium sized cities in Mexico. Unlike Leon, the reform process did not begin in Irapuato for approximately fifteen years after the initial founding of the municipal water utility. From the mid 1980s until approximately 2000, discretionary service provision characterized municipal water delivery, with inadequate service being provided to the city's residents.

4.4.1. Irapuato's Mayoral-Business Coalition

Despite being founded in 1984, Irapuato's water utility (Junta de Agua Potable y Alcantarillado de Irapuato, JAPAMI) did not begin a reform process until 2000. A high level of mayoral support and a medium/high level of business support has helped fuel an extensive and highly visible reform process (along with their access to state resources), although less consolidated than the one in the Leon case, and more dependent on mayoral intervention than both the Leon and Celaya case. In order to understand how a high municipal policy reform outcome was achieved, this section examines how a mayoral-business coalition formed, with participatory mayoral support.

Irapuato's business community became supportive of reforms in the water and sanitation sector by the late 1990s, but they did not take on the same participatory role as Leon's business community had demonstrated. Industrial manufacturing in Irapuato makes up 60% of the municipal economy, and 50% of industrial production is centered around food production, which is heavily reliant on water (INEGI Economic Census Data, 2004). Therefore, there is a strong interest on behalf of Irapuato's business community to receive piped water with sufficient pressure and quality to meet their production needs. However, it was not until the PAN won the Irapuato municipal presidency in 1997 that extensive reforms in the sector began. In 1997, Irapuato's political profile changed from PRI to PAN, the pro-business party that was becoming supportive of these reforms across the state, and in some other parts of the country. With support for market-based reforms in city hall, the water utility's board of directors began to change, incorporating segments of society—in many cases, business leaders—who were supportive of cost recovery measures and adopting market-based reforms. However, because Irapuato's business community—while water reliant—was not centered around a high profile sector such as Leon's internationally renowned leather curing industry, they had less organizational resources with which to participate in initiating the reform process as extensively as Leon's business community. Indeed, Irapuato's mayoral-business coalition was fueled by the active role of several PAN mayors and PAN board of directors of the water utility.

In 1997, after years of discretionary service practices in water utility and politicized mismanagement within the board's leadership, the configuration of actors within the board of directors changed drastically. In 1999, the PAN won the Irapuato municipal office and the

members who were selected by the mayor to serve on the board, particularly the board president, engineer Oscar Figueroa, envisioned the water utility as a business that needed to get out of debt and generate revenue.¹²⁹ This agenda was continued during the following administration of board president Eduardo Ordóñez, who was also an engineer, and was able to generate enough revenues from bill payments during his administration that the water utility was no longer in the red (Cronología de la JAPAMI, 2008). The major shift came under the engineer Mario Turrent Anton, who had previously served as a city council person (*regidor*) on the water utility board, and became the president of the board of directors in 2002. With prior first hand knowledge of how the water utility's board was managed, and the key challenges facing the water utility, Turrent became a key actor in the reform process.

The institutional structure of the board of directors was drafted around the same time that Turrent became board president, ensuring a level of autonomy within the board's leadership, and creating for the first time bylaws that would provide a legal framework for the water utility's operations (Junta de Agua Potable y Alcantarillado del Municipio de Irapuato 2002). The board limited city hall's representation to two city council members, specifying that the remaining seven members be drawn from civic society, including one representative from the city's professional college (*Colegio de Profesionalistas*) and the other from the municipal business association (*Consejo Coordinador Empresarial*). Although the Irapuato bylaws do not explicitly ban the mayor from sitting on the board (as they do in Leon), the wording of Article 7 indicates that the two city council people that sit on the board are from a city hall working group to which the mayor does *not* belong.¹³⁰ Several years later, in 2008, the bylaws were changed to specify that the two city council people could not become the board president, barring politicians from becoming board presidents. Furthermore, the transition between new and old board members is potentially gradual because members can serve two consecutive terms.¹³¹ However, the bylaws are not explicit about retaining a certain percentage of board members at any given time, leaving the door open for abrupt changes in the board's administration. Overall, the institutional structure of Irapuato's board of directors did create distance from the mayor's direct intervention by limiting the ability of the two politicians or the mayor from sitting as board president, but did not explicitly create mechanisms of ensured continuity between administrations.

The relationship between the board's leadership and the mayor has been relatively close in Irapuato. Turrent, as the board's president, had previously been a city council person and was connected to the mayor and city hall. He was able to use these connections to garner support for reform efforts within the water utility. As the water utility developed during this critical 2000-2006 period, the board worked with a PAN city hall on projects of mutual interest, gaining the support of the mayor on numerous projects, including coordinating on city planning decisions involving new water connections (interview with Orozco, 2008). After amassing an impressive performance record at the water utility, Turrent ran for mayor, under the PAN party, and won in

¹²⁹ Irapuato's PAN mayors have been Salvador Pérez Godínez (1997-2000), Ricardo Ortiz Gutiérrez (2000-2003), Luis Vargas Gutiérrez (2003-2006), Mario Antón Turrent (2006-2009), and Jorge Estrada Palero (2009-2012).

¹³⁰ The "Comisión de Organismos Descentralizados" is a commission that, according to the municipality's website, is staffed by city council people (regidores and síndicos) and excludes the mayor. <http://www.irapuato.gob.mx/>.

¹³¹ There has been some ambiguity about the wording of Articles 7 and 8 in the 2002 bylaws, leading to confusion about how long members could stay on the board. Some members have been accused of staying past the two administrations, leading to a bureaucratic morass. This dispute led to the drafting of the 2008 bylaws that specified "De origen, problemas en reglamento de JAPAMI," *Correo*, August 22, 2007.

2006. The new mayor was therefore someone with considerable knowledge and support for the reform process at the water utility, a reform process that he himself had helped initiate as board president several years prior.

As with many municipalities in Mexico, the office of the mayor holds considerable sway in Irapuato, and is able to interfere with the water utility's operations more than in the Leon case. While in Leon, the mayor was legally entitled to oversee the water utility's operating decisions but was in practice stopped from doing so by the strength of the business community, in Irapuato the mayor is able to contribute to the board's decision making process, although not dictate it entirely. For example, in the 2008 election of the water utility's board president, Turrent, as mayor, was able to influence who became president—he did not get his first or second choice, but he did approve of the final candidate and influence the outcome.¹³² The reform process initiated in 2002, therefore, has been one of coordination with city hall, and the occasional intervention from PAN Mayors.

JAPAMI's general managers have clearly not been the pivotal decision makers in the reform process, and have been subsumed under the vocal leadership of the board's presidents. Before reforms took off in 2002, JAPAMI's general managers had a history of being frequently turned over with the election of each new board president. Under the Turrent tenure, however, a general manager was hired, Antonio Leon Ortega, who remained in his position for almost six years. While the general manager was responsible for carrying out many of the major reforms that took place, the clear authority in JAPAMI is the board president. JAPAMI's board of directors has not yet retained a general manager for an extensive period of time.

In conclusion, the mayoral-business coalition in Irapuato has been fueled by several PAN mayors who were on board with undertaking market-based reforms in the sector, and particularly engineer Turrent, who had first-hand knowledge of the city's water and sanitation services and worked to protect the reform agenda as city council person, president of the water utility's board of directors, and eventually mayor. The water utility's leadership has been mostly PAN members, although they retain rhetoric of minimizing partisan politics on the board. A few key board presidents worked closely with Irapuato's mayor, garnering his support for reforms while not completely eliminating his interference. The board's bylaws are institutionally sound—they create an important barrier from partisanship and municipal politics, however they are only as strong as the force of the civic leadership who enforces them. Irapuato's business community is heavily reliant on water, and has supported the reform agenda by accepting cost recovery policies, in particular cross-subsidies, as well as paying back historic debt. In many cases, board members have been members of the business community. However, the business community in Irapuato has not been as participatory as Leon's business community, in part because it has not coalesced around a high profile, highly organized industry, such as Leon's leather curing industry. Instead, Irapuato's industrial production profile is mostly the food production industry, that while highly reliant on water, operates at a more disperse, less homogenized and more local level.

¹³² "Aconteceres" by Pepe Grillo, *El Sol de Mexico*, May 25, 2008.

4.4.2. Municipal Policy Reform Outcome

Turning to the second step in the analysis, the following section describes how a strong mayoral-business coalition, coupled with extensive reliance on state level resources, has led to a high municipal policy reform outcome in Irapuato. Because Irapuato's mayoral-business coalition formed in the late 1990s/early 2000s, they were able to take advantage of state level resources available that were not as developed in the early 1990s when Leon was reforming their water and sanitation sector. Irapuato's municipal policy reform has not been as extensive as Leon's, but a considerable amount of reforms have occurred in a short amount of time. This section emphasizes the municipal level reformers' ability to take advantage of the state level resources available in Guanajuato, which accelerated the reform process and has created important partnerships between the Irapuato municipality and the Guanajuato state government.

4.4.2.1. Creating Cost Recovery (Fiscal) Policies

The first dimension of the municipal policy reform outcome is standardizing pricing policies, increase transparency and generate much needed revenues for the water utility. Historically, as in much of Mexico, Irapuato citizens across all income brackets were accustomed to being charged a "symbolic" rate, if any rate at all (Junta de Agua Potable y Alcantarillado del Municipio de Irapuato 2008). While the municipal water utility had been charging for water since its inception, these prices were not standardized, infrequently updated, and not uniform with other prices throughout the state, leaving room for rent-seeking opportunities in both pricing policies and collection practices.

A major shift in pricing policies began in 2001, and was led by the state water commission. As discussed in Chapter 3, the state water commission worked with consultants and the Guanajuato state congress to initiate a state-wide price standardization policy. In 2001, Guanajuato's state congress decreed that all water prices be published in the state's income law (*Ley de Ingresos*), which revealed the wide disparity between the 46 municipalities' pricing policies. Upon seeing these disparities, the state water commission worked closely with consultants to undertake service costs analyses for each municipal water utility, of which Irapuato was one. Congress then passed an initiative to increase rates, reformulate the price structure and mandate annual updates (interview with Lara, 2008; interview with Sandoval, 2008). The state water commission funded the cost analysis and had them carried out by outside consultants, providing Irapuato with the framework they needed to standardize their prices. While the outside consultant, Victor Lara, continued to help Irapuato with their annual updates in the following years, eventually Irapuato's water utility became self sufficient and managed their pricing policies independently of state support (interview with Cardona, 2008). While prices were standardized with support from the state, neither the municipality nor the water utility was spared from social resistance to the water price increases.

Previously there were neighborhood leaders who would negotiate the water prices for their neighborhood. They would establish the price, and [if the price was not allowed] would threaten the water utility with a strike, barricading the door and not letting consumers come in and out to pay for water... (anonymous respondent, 2008)

These neighborhood leaders were powerful forces in Irapuato, and represented widespread resistance to increasing water prices, one which prior mayors had been receptive. However, the new board of directors, led by Mario Turrent, teamed up with the PAN mayor in the early 2000s (PAN Mayor Ricardo Ortiz Guitérrez) to begin resisting the political pressure for lowered or eliminated prices.

With the support of the mayor, [we] stopped giving in to the [ad-hoc] demands of neighborhood leaders, and the pressure from these leaders began to decrease. There was a movement to charge [for water] more systematically, which the mayor supported. (anonymous respondent, 2008)

Striking a hard-liner attitude against civic backlash was not without its political costs to the mayor and the water utility. In 2002, over 1,000 citizens filed complaints with the municipal judicial office against water price increases (anonymous respondent, 2008)¹³³. However, the Irapuato water utility responded in various ways that helped lessen the backlash against water prices, and appealed more broadly to individual consumers, breaking the collective action against price increases.

The Irapuato water utility changed several key components of their collection practices in order to both make their price restructuring policies more palatable to the public. First, they began to systematically provide qualifying low-income consumers with subsidies, inviting individual consumers to deal directly with the water utility instead of having the neighborhood leaders serve as a go between. This helped lessen the power of neighborhood leaders:

If [there are] low income customers, [that] come to us individually, through a socio-economic study we can determine their ability to pay—that way, we [create subsidies] for the people who really need it. There was the support from city hall, and these discounts were applied in different ways. Some people who had long standing debt, special discounts were applied. And through these [negotiations], these leaders began to lose their hold on society, their power in the community. Now we don't have those types of strikes anymore. Whatever issue occurs now, we ask consumers to come individually and deal directly with us. (anonymous respondent, 2008)

The water utility advertised that local leaders who citizens allowed to speak for them did not always have their best interest in mind:

We have also let consumers know that there have been annual payments that neighborhood leaders collected from consumers that never entered the water utility. The leaders would also ask for a side payment from the consumers they represented, which was not necessary. (anonymous respondent, 2008)

At the same time, in order to reach a broader audience, Irapuato worked with the state water commission to disseminate pricing comparatives, “for example, how much do you spend on soda [compared with water], etc, we made brochures for the public. The most important thing was to reach the public...” (interview with Cardona, 2008). By explaining the costs associated with extracting water from aquifers, transporting it and treating it, they promoted greater public awareness of how the revenues generated from water rates were used.

¹³³ These complaints are filed with the Juzgado del Contencio Administrativo de Irapuato.

[We used] the strategy of informing society and that broke with the idea that society did not want to increase rates, because what they did want was a more efficient service that [actually] functioned...and provided a better service. (interview with Cardona, 2008)

These public outreach campaigns were a result of important partnerships with the water utility and the state water commission, as well as the water utility and the municipal government of Irapuato, who shouldered much of the political costs of these reforms.

In order to further standardize collection practices, the Irapuato water utility undertook initiatives similar to those in Leon: they initiated service suspensions for nonpayment, as well as increased the ease of payment for customers. The water utility expanded payment options so consumers could pay their water bills throughout the city in supermarkets and banks, and more recently, online on their website. Also, by creating a large customer attention center, complete with expanded parking, in the new building that was constructed during Turrent's tenure as board president, the ease of pay has increased for customers. These innovations have been inspired by the practices of other water utilities, and supported by the municipality. During the 2006-2009 period, the Mayor Turrent, who had previously been the water board president, has supported, both politically and financially, modernizing collection practices (anonymous respondent, 2008). Additionally, the state water commission has engineered a state wide initiative to help municipalities update their electronic accounting systems, and Irapuato has been able to take advantage of that resource, which will make a great contribution to systematizing the commercial aspects of service provision. These reforms, due in large part to important partnerships with both the Irapuato municipality and the state government, has allowed Irapuato's water utility to make considerable progress towards implementing cost recovery policies in a short window of time.

4.4.2.2. Creating Reforms in Operational and Institutional Practices

Until the late 1990s, the water utility's principal operational concerns was distributing the small amount of water they had through leaky pipes, managing the asbestos in the pipes, and avoiding ruptures in the network from the many fault lines surrounding the city. Starting in 2000, their operational practices began to change.

Fifteen years ago, all of the measurements of water extraction, pressure, and all service repairs were entirely manual [with picks and shovels]. [By 2005], 70% of our measuring functions (measuring water extraction, energy use, water pressure) are automated and digitalized. There have been enormous changes...in water quality, in the amount of time responding to leaks...we have grown...enormously. (interview with Orozco, 2008)

The water utility's operations department has worked closely with the state water commission's operations support office in order taken a to implement technical changes, such as increasing water pressure throughout the network, decreasing the asbestos content in old pipes, eliminating leaks and clandestine connections, and rehabilitating pipes (interview with Orozco, 2008). These strategies have allowed the water utility to deliver more water with greater pressure to consumers, as well as minimize the illegal market in water delivery that occurs when water networks are manually operated. The state water commission has provided both technical expertise and financial support for these programs, and Irapuato's piped water service has benefited enormously from this partnership.

Perhaps most impressively, Irapuato now has two sanitation treatment plants that treat 90% of the city's wastewater. These plants were funded in part with partnerships with the state government, and with their support, access to federal level support from the National Water Commission. The creation of sanitation treatment plants elevates Irapuato's level of service and modernization of their water and sanitation provision process well beyond many municipalities throughout Mexico.

During the 2000-2006 period, JAPAMI's water utility adopted many of the same organizational structures as Leon's water utility had in the 1990s. They began worker training programs, supported by the state water commission, and expanded their workforce, gained funds for a new building with greater customer service measures, and implemented an accessible website where consumers can gather information, pay bills, and contact the water utility. Their employee/1000 connection ratio is 6¹³⁴ (Comisión Estatal del Agua de Guanajuato 2007), which reflects a commitment to reducing redundant workforce, and retaining the appropriate amount of work staff to service their customer base.

Finally, as in Leon, Irapuato's water utility has played an important role in the urban planning of Irapuato ever since the reforms were initiated. City hall works closely with the water utility to grant development contracts in places where providing water services is feasible, influencing the development patterns of the city and assuring water service to new neighborhoods.

4.4.3. Conclusion

In Irapuato, the reform agents were board presidents and PAN mayors in city hall from the 2000-2008 time period. They were able to create a strong support for market-based reforms in the sector, playing a participatory role in the business-mayoral coalition, and working closely with the water utility's board of directors in order to implement extensive reforms in a short amount of time. PAN mayors in Irapuato found it politically beneficial to support a reform agenda that had been supported by their party in large cities throughout the state, was associated with improved service, and did not adversely affect their primary constituency—medium and upper income consumers. The mayor could directly intervene and influence the outcome of board decisions; however, the reward for his intervention was a large amount of political support from city hall for the water utility, which was particularly useful in confronting the social backlash against water price increases, as well as attaining funding for projects. The reforms have set in motion an inertia towards consolidating reforms in Irapuato's water provision process—only time will tell whether these reforms are reversible by future administrations. Irapuato's business community—which was highly reliant on water but not organized extensively around the same sector—has been supportive of reforms, but have not been as participatory as Leon's business community.

Irapuato is also a case of extensive use of state level resources, which helped expedite the reform process, helping to fuel an impressive amount of reforms in a short time span. By

¹³⁴ In developing countries, staff per 1,000 connections can be as high as 20. Anything less than 5 is thought to indicate strong operational efficiency in developing countries. See World Bank (2002).

coordinating with both the municipality and the state government, the Irapuato water utility created key partnerships that set important precedents for water service provision in the city. By continuing to invest in these partnerships, the Irapuato water utility has a chance of consolidating the reform process and retaining it over time.

4.5. CELAYA: HIGH REFORM CASE

The city of Celaya is the third most populous in the state of Guanajuato, and has experienced rapid urbanization in the last few decades. Celaya's level of industrialization is higher than Irapuato but lower than Leon's.¹³⁵ Celaya's water provision was also federally managed before being transferred to the state government, and soon thereafter to the municipal government in 1984. As in the Irapuato case, Celaya's water utility did not experience a substantive reform process until nearly 15 years after its initial founding. Celaya's water utility, like the Irapuato case, was able to consolidate a business-mayoral coalition, and sustain it over three municipal administrations. By accessing extensive state as well as federal resources, the Celaya water utility was able to enact a substantive amount of policy reform in the water and sanitation sector, although less than both Irapuato and Leon.

4.5.1. Mayoral-Business Coalition

Celaya's experience with the creation of a mayoral-business coalition differs from the Irapuato and Leon experience in two key ways. First, the reform process was led by the general manager supported by the mayor and the business community, rather than mayoral representation or business influence working through a board of directors (as was the case in Irapuato and Leon, respectively). Second, while mayors in Celaya supported the market-based reforms undertaken by the general manager, they did not provide the same amount of active support in terms of fiscal resources or collaboration on joint projects as Irapuato's city hall. While Celaya's business community supported the reform process—Celaya's sizable industrial production is heavily reliant on water—they were not actively involved on the board of directors. Both mayoral support and business support are ranked as medium high in Celaya's case.

As was the case throughout most Mexican municipalities, historically Celaya's service provision was characterized by poor service quality due to an antiquated and under-serviced network infrastructure, as well as sporadic and uneven fee collection, which helped perpetuate a cycle of underdevelopment of services (interview with Gonzalez Nieto, 2008). In 2000, major shifts at both the state and municipal level began to change the direction of service provision in Celaya. At the state level, the Guanajuato state Congress passed a state water law, which pushed for more stringent cost recovery policies and market-based policy reforms in water provision, and granted the state water commission greater authority and responsibility in supporting municipalities in this task, as discussed in Chapter 3. At the municipal level, a new PAN mayoral administration (the second PAN administration ever in Celaya) began its tenure, one which was open to the idea of making radical changes in Celaya's water utility. This mayor, Jose Manuel Mendoza Marquez (2000-2003) was neither greatly concerned nor highly knowledgeable about

¹³⁵ Celaya's industrial production was MXP\$ 17.9 million in 2004, while Leon's was \$MXP 30 million and Irapuato's was \$11.5 million.

shortcomings in Celaya's water services; instead he relied on the expertise of a city council person with prior experience with the water utility.

With the support of Mayor Mendoza Marquez and a city council person on his administration, Francisco Gonzalez Nieto was appointed general manager of Celaya's water utility in 2000. Gonzalez undertook extensive reforms in Celaya's water utility with the tacit support of the three mayoral administrations under which he was employed. Gonzalez approached his new task as general manager from the vantage point of the business sector, where he had worked for the majority of his career. His tenure was an exercise in bringing business principles to the public sector: increasing the water utility's revenue streams, its physical and commercial efficiency, and making the water utility more visible and responsive to its customer base. During these nine years, Gonzalez compiled a group of technocrats and consultants to manage the reform process, namely consultants that were referred by the state water commission. While Gonzalez was general manager of the water utility, he was the leading force behind the reform process in service provision, relying extensively on outsourcing of project plans, software systems, and other areas he and his team was attempting to modernize. Politically, he relied on the support of two PAN city council people, the one that brought him into the water utility, and another one who retained his own position in city hall for two mayoral administrations, and defended Gonzalez against replacement to the new mayor who entered office in 2003, José Rivera Carranza (2003-2006).

As the principle agent of Celaya's reform process, Gonzalez was able to dictate the terms of civic participation in the city's water provision process. During the first mayoral administration (2000-2003), Gonzalez was able to prevent a board of directors from being formed, convincing the mayor that a board comprised of Celaya's citizens would derail the reform process (Gonzalez Nieto, 2008). During the second administration, the mayor insisted on forming a board of directors to comply with both the state and federal government's guidelines for creating board of directors to oversee municipal water utilities. However, "the board was managed by city hall...so as to not disrupt the work that had begun" (Gonzalez Nieto, 2008). The general manager and city hall worked to keep civic representation out of the water utility's management during its initial conception, and later instituted civic representation that would follow the reform agenda begun in 2000.

Celaya's business community supported the reform process, but, as in the case of Irapuato, its level of support was medium high, meaning that while cost recovery measures and overall service improvements were supported, business leaders were not as active and participatory as they had been in Leon. Celaya's industrial manufacturing makes up 64% of the municipal economy, 59% of which are reliant on water. These industries include electronics, food production, and chemical production (INEGI Economic Census, 2004). Like Irapuato, water reliant business sectors in Celaya were diverse, and not organized around a trade association, as the leather curing industry in Leon had been. However, the mayor and water utility team did not hesitate to incorporate industrial manufacturers into the reform process by imposing cost recovery measures, which soon rewarded industrial manufacturers with improved service. Because Celaya's industrial users accepted cost recovery pricing and collection practices, in particularly the cross-subsidy structure, the reform process was made possible.

Therefore, the mayoral-business coalition in Celaya was composed of a passive water-reliant business community, supported by PAN mayors who were not directly involved in decision-making, and carried out by the general manager and his groups of technocrats. While Gonzalez was general manager, he relied on political support from city hall, but did not have direct access to the mayor in the same way as the Irapuato case where mayoral support was instrumental. Nor could Gonzalez count on a politically important group of business actors who would participate actively in the reform agenda, like in the case of Leon. Therefore, the mayoral-business coalition was medium high in Celaya. However, during Gonzalez's tenure, mayoral-business support did contribute to vast reforms in a short amount of time, as demonstrated in the following section.

4.5.2. Municipal Policy Reform

The reform process in Celaya was comparable to what occurred in Irapuato. As in Irapuato, Celaya's water utility used state level resources to expedite and bolster the reform process. Perhaps more so than in any other case in the state, Celaya's water utility relied extensively on external consultants to guide the water utility through each step of the reform process, particularly in creating cost recovery pricing policies.

4.5.2.1. Creating Cost Recovery (Fiscal) Policies

In Celaya, mayors had previously hesitated to charge for water services, or increase prices over time, and therefore prices were not standardized, infrequently updated and discretionarily collected. "Customers did not pay...and received no sanctions, nothing happened. There were two teams of service suspensions, and they did not cut service" (interview with Gonzalez Nieto, 2008). The discretionary nature of water provision allowed for abuses in pricing policies that affected the revenue stream of the water utility and their ability to improve service quality.

The state-wide shift in pricing policies that provided impetus for pricing reforms in Irapuato had the same effect in Celaya. The state water commission funded studies and coordinated external consultants to work directly with the Celaya water utility, which is how Celaya's general manager was introduced to Victor Lara, who would become a primary consultant for the water utility. From 2000-2003, Celaya's water utility worked to standardize its price structure, create differentiated consumption rates, and institute annual updates. The external consultant, Victor Lara, remained actively involved in Celaya's pricing policies through 2008.

As part of Celaya's efforts to standardize collection practices, the water utility began an extensive water service suspension campaign for customers who did not pay water service.

We contracted ten teams (up from two) to do service suspensions. I told them to begin implementing service suspensions street by street, so that people further down the street could see that we were advancing towards them, and that we were going to shut their service off [if they didn't pay]. So people could see that service suspensions were approaching and they began to come and pay their bill before the teams got to [their house]. The word began to spread that we were serious. (interview with Gonzalez Nieto, 2008)

In implementing service suspensions, the reform agents strived for equality in suspension policies, working against years of inertia that protected wealthy and well-connected consumers from paying for water service:

There were people in affluent neighborhoods that did not pay for service. In the press, people claimed that [these affluent neighborhoods] were protected because they were friends of the government. We said no, if we are suspending service, we are suspending it for all [non-payers]. So we went to cut service for nonpayment in those neighborhoods, and they would come out and say, 'don't you know who I am,' and 'I'm going to report you.'...But we wanted to ensure that the suspension [practices] were fair. (interview with Gonzalez Nieto, 2008).

These changes in Celaya's collection policies generated significant revenues in a short amount of time. The water utilities' revenue streams more than doubled from 2000 to 2003 due to changes in suspension policies.¹³⁶

The water utility implemented other important measures in creating cost recovery pricing policies with the help of external consultants. They hired a firm to lower the amount of unpaid accounts (*cartera vencida*) on a results oriented commission. The firm received 10% of the revenue stream they were able to recuperate from unpaid accounts. To the public, the contracted firm appeared to be a group of attorneys that represented the water utility. To consumers who were years behind in payment, the firm generated letters of past due payment, and even threatened to take legal action against them. They also worked out payment plans for partial payments or other forms of debt forgiveness for qualifying consumers. Simultaneously, Celaya's reform agents redesigned their payment options to make it easier for consumers to be able to pay for service. While they could not yet afford a new building, they rented small offices throughout the property for customers to be able to pay quickly, and "not spend hours and hours waiting to pay for service" (interview with Gonzalez Nieto, 2008). The water utility also installed new accounting software using state government funds, and began to create more payment options for consumers throughout the city. Also, by installing meters more extensively, they also were able to better measure the amount of water being consumed, and charge accordingly. In 2000, the water utility owned 20,000 meters but only 8,000 of them functioned. In 2007, the water utility had over 60% of all connections measured by a consumption meter (CEAG, 2007).

As in the other two municipal cases, Celaya paid particular attention to public dissemination and brand management, wanting to make sure consumers knew how collected revenues were being used:

We invested in projects, to show people that we were using their money to improve service. The public image of the water utility grew...our presence grew, with logos, and our brand, throughout the city. We started diffusion campaigns—conserve water, pay for water, etc. We started to have a presence in the city. We began invading the city. (interview with Gonzalez Nieto, 2008)

The general manager, Gonzalez, insists that these reforms were possible because the mayor was aware of the political costs and allowed the water utility to suspend service for non payment and update their price structures. However, unlike the other two cases examined in this chapter, in

¹³⁶ In 2000, revenues from water bill payment was \$30mxd million pesos, it rose to \$67 mxd million in 2003. *JUMAPA Celaya internal figures, ANEAS document.*

Celaya, the general manager undertook the majority of the reforms with little direct oversight by either a mayor/city hall or the business community. Instead, he was able to design and carry out pricing and collection reforms with the use of consultants, none of whom were entrenched in larger civic networks in the city.

4.5.2.2. Creating Reforms in Operational and Institutional Practices

The revenues generated from creating cost recovery policies went directly into systematizing operational practices, which in turn increased the efficacy of cost recovery pricing policies because it improved service quality, making consumers more inclined towards payment of services.

In 2000, Celaya's water utility was so deficient in their operational management that they did not have an updated network infrastructure map (*catastro*), and employees had to work from personal knowledge of where pipes were located, and what condition they were in. Through the years, the operational side of the water utility has begun to modernize, creating a department dedicated solely to updating the network infrastructure, minimizing water loss, increasing water pressure, reducing clandestine connections. For example, by interconnecting pipes servicing different neighborhoods, the water utility created insurance for failed water aquifers. If one aquifer failed, they could draw on the aquifer from a nearby neighborhood while they repaired the faulty extraction point. By interconnecting pipes and their extraction points, the service teams attempted to minimize, wherever possible, disruption to service. They also invested heavily in high efficiency water extraction units, lowering their electric energy costs and saving the water utility money over time.

Prior to 2000, service workers would take weeks to respond to service complaints, and consumers would be without water for multiple weeks. The Celaya operational team began to streamline this process and make it more efficient:

[We began] a massive shift in service quality. ...it was important to respond to consumers who complained about leaks or lack of service. We started saying that these service complaints needed to be addressed in two or three days. Or when an underground aquifer stopped working, the operations staff used to just ignore it, but now we insisted that it be immediately repaired. People need to have water. When people started seeing this, it began to change their mentality about paying for service. (interview with Gonzalez Nieto, 2008)

Another way in which changes to the operational practices of the water utility garnered public support was in completing hydraulic infrastructure projects that would benefit a large group of citizens. In 1988, a hydraulic project was begun that would create ten underground aquifers and distribute the water to 50,000 inhabitants. Although the project was constructed and the holding tank was built, the network did not function because there were several miles of missing pipes that were never constructed because they had to go through *ejidatario* land, or communal land protected from corporate and government expropriation. The general manager was determined to rehabilitate the project and see it through to completion,

I personally went to talk to the farmers, and convinced them to let us run the pipes through the land. We finished the project, extending service to 50,000 new homes overnight. It was a massive achievement—it helped change our public image. (interview with Gonzalez Nieto, 2008)

Another department that was crucial for the development of the operational side of water provision was the creation of a Studies and Projects team. By creating this department, the general manager ensured that the water utility would not have to spend money contracting out their blueprint plans for hydraulic infrastructure projects. This strategy has not only provided the water utility the capacity to respond quickly and effectively to any technical issue that occurs in daily operations, but has also allowed them to access federal and state level resources. In order to access federal and state level resources for infrastructure projects, municipal water utilities must have both infrastructure plans and a portion of funds to contribute to the project. Because Celaya's water utility has had both for several years, they have been able to access an extraordinary amount of fiscal resources for infrastructure projects in the last decade.¹³⁷

Despite the major advances that have been made in a short amount of time in Celaya, it should be noted that unlike Leon and Irapuato, the Celaya water utility does not yet treat its sanitation. Celaya is currently in the bidding process for a joint venture project with a private firm to construct and operate a sanitation treatment plant, but it may be years before the plant is constructed and in operation.¹³⁸

Reforms in the institutional aspects of the municipal policy reform outcome in Celaya have been less extensive than both Leon and Irapuato. Appendix 4.1 demonstrates how Celaya scored a 3.0, compared to Leon's 5.0 and Irapuato's 4.0 in this category of reform. In Celaya, professionalization and education of staff has occurred through training and workshops—again, supported by the state water commission, but Celaya's water utility has been less strong in consumer outreach initiatives and creating a functioning website.

4.5.3. Conclusion

In Celaya, PAN mayors were supportive of the reform agenda, but did not collaborate directly with an participatory business sector. Instead, the business sector supported cost recovery measures, but did not sit on the board of directors to the same extent as they had in Irapuato, and much less so than the active and involved Leon business sector. However, because PAN mayors were on board with market-based reforms in the water and sanitation sector beginning in 2000, they extended their political support, and allowed technocrats—led by one general manager—to take over operational decisions. Mayors rarely intervened or dictated the operational practices of the water utility, but rather gave the general manager and his staff full reign. Furthermore, the board of directors was not formed until later in the reform process. Even when the board of directors was created, it was “controlled” by the mayor and was not actively staffed by business leaders, as was the case of Leon.

Overall, the limited amount of direct participation by the mayor did not hurt the reform efforts in Celaya because it prompted extensive partnerships with both the state and federal

¹³⁷ APAZU, PATME, state water commission have been the major sources of funding. In 2007, Celaya's water utility received \$36mxd million, and in 2006, \$29mxd million, up from \$3mxd million in 2000. Celaya internal figures, 2008, ANEAS document.

¹³⁸ This project is being funded through the PROMAGUA program run by the National Water Commission. PROMAGUA promotes private sector construction of sanitation treatment plants in joint venture projects with municipal water utilities, see Chapter 2.

government, rather than reliance on municipal funds. The general manager used the consultants he hired to help pull resources from available sources at the National Water Commission and the Guanajuato State water commission, making the need for fiscal support from the Celaya municipality obsolete. Celaya, like Irapuato, is a case of extensive reforms in a short period of time, as well as an extensive use of state level resources.

4.6. CHAPTER CONCLUSION

While all three municipal cases within Guanajuato state had high levels of ‘strength of mayoral-business coalitions’ and correspondingly high levels of municipal policy reform in the water and sanitation sector, there were important differences among the three cases in several respects.

The first difference between the three cases was variation in the extent, and configuration, of mayoral-business support. All three cities have high industrial production and high levels of water intensive industry. Data from the Pacific Water Institute and Mexico’s economic census allows for a comparison of the three cities’ industrial profiles, and the extent to which these industries were reliant on quality and quantity water service. I score industrial economies as highly reliant on water if 1) the aggregate total gross income from water reliant industries exceeds a minimum threshold,¹³⁹ and 2) if the total gross income from water reliant industries composes over a significant plurality of the total gross income of the local economy. All three of these cities meet this two-step criterion, allowing me to score all three as cases where a critical concentration of water dependent industry is present, as seen in Figure 4.1.

Figure 4.1. Measures for Water Intensive Industry in Guanajuato State

| Municipality | Aggregate Production of Water-Intensive Industries as a Percentage of Total Production (Concentration Measure) | Aggregate Production of Water-Intensive Industries (\$1,000,000) (Critical Mass Measure) | Critical Concentration of Water Dependent Industry? |
|--------------|--|--|---|
| Leon | 40% | 26.9 | Yes |
| Irapuato | 58% | 11.0 | Yes |
| Celaya | 59% | 16.4 | Yes |

Source: 2004 Economic Census, INEGI Mexico; Pacific Institute’s Water Program

Therefore, all three cities have a strong concentration of water intensive industries that are in a position to support reforms in the water sector, in particular by complying with the cross-subsidy structure whereby higher volume consumers pay more per cubic meter for water than lower volume consumers. While all three cities experienced support from their business consumers, the

¹³⁹ The minimum threshold I have selected for this study is 40%.

form that this type of support takes across the three cases varies. In Leon, the business community rallied around water and sanitation policy as a form of “boosterism,” creating a directly active and participatory role for themselves in the reform process, as evidenced by the extent to which they dominated leadership positions within the board of directors. In contrast, Irapuato and Celaya’s business communities were more passive and not participatory. I argue that because the water intensive business communities in these two cities were less concentrated, collective action was more difficult to achieve. In Irapuato, business leaders did sit on the board of directors, but did not single-handedly dominate its leadership structure. In Celaya, business leaders did not sit on the board of directors until later in the reform process and only then as a formal role approved by the mayor, not as an important leadership role. As Table 4.1 indicates, Leon’s business support was high, while Irapuato and Celaya’s was medium high.

| | Mayoral Support | | | | |
|-------------------------|------------------------|-----|------------|-------------|---------------|
| | | Low | Medium Low | Medium High | High |
| Business Support | Low | | | | |
| | Medium Low | | | | |
| | Medium High | | | Celaya (GT) | Irapuato (GT) |
| | High | | | Leon (GT) | |
| | | | | | |

In all three cases, mayoral support was strong, due to being from a pro-business party (the PRI in a few cases for Leon but mostly the PAN) whose primary constituent base—middle and upper income consumers—would reward improved service provision, and were willing to accept cost recovery measures in order to ensure improved service. However, the role of these mayors took on different degrees of direct participation. In Leon, the business community played a strong participatory role, so much so that pro-business PRI and PAN mayors were kept out of directly managing decisions within the water utility. Although mayors supported the reform process in Leon, they did not actively lead it, making mayoral support in Leon a medium high score. In Irapuato, mayors were more involved in the reform process, with a score of high, particularly mayor Turrent who had previous experience on the board of directors of the water utility and continued the reform process upon becoming mayor. In Celaya, mayoral support was medium high—strong, but not participatory. However, unlike Leon, the business community did not actively participate in Celaya’s reform process, instead, technocrats within the water utility were given free reigns to adapt market-based reforms as appropriate, receiving the mayor’s political support.

The Guanajuato state institutional support available to the three municipal cases were utilized during the implementation stages of the reform process, although less so by Leon, than Irapuato and Celaya. The issue of timing is important in understanding why Irapuato and Celaya were able to take greater advantage of state level resources from the state water commission than Leon. By the time the state water commission was able to provide a vast number of resources, Leon had developed and consolidated its reform process, and did not need to utilize state level resources. But because Irapuato and Celaya adopted the reform agenda around 2000, the state water commission was instrumental in their development. It is important to underscore that state level resources are an important resource for municipalities once the first condition of the argument—the presence of mayoral-business support—is present. In this sense, the argument has two phases, first the mayoral-business condition must be satisfied, and then the state level resources can be instrumental during the implementation stages, as outlined in Chapter 1.

Figure 4.2. Findings for Municipal Cases in Guanajuato State

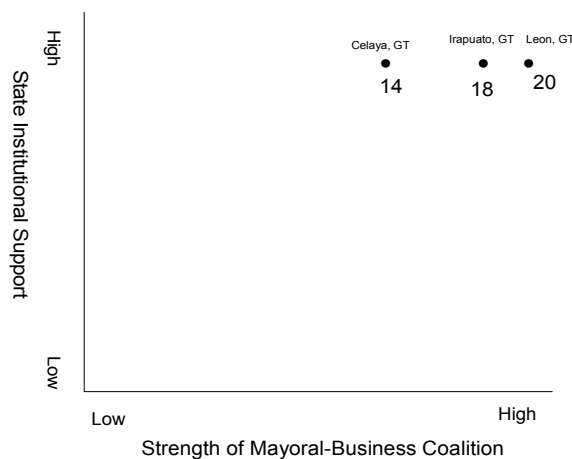


Figure 4.2 illustrates how variation in the strength of the mayoral-business coalition, coupled with state level institutional support, lead to the municipal policy outcome. The outcome is conceptualized along three dimensions (fiscal, operational and institutional), and the precise scores for each indicator in the dependent variable index is presented in Appendix 4.1. While all three municipal cases in Guanajuato have a nominal score of ‘high,’ the numerical score provides an important rank ordering between the cases, illustrating a subtle amount of variation across these three cases that achieved a high amount of municipal policy reform in their water and sanitation sector.

Appendix 4.1. Municipal Policy Reform Index for Three Cases in Guanajuato State

| Categories and Subtotals | Indicators | MUNICIPAL CASES AND SCORES | | |
|--------------------------|---|----------------------------|--------|----------|
| | | LEON | CELAYA | IRAPUATO |
| FISCAL POLICIES | Cost Recovery Measures 1: Pricing Policies/Structures | | | |
| | 1. Is (new) pricing structure consumption based, with built in cross-subsidies? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 1.0 |
| | 2. Are non-water consumption service concepts (e.g. new meter installations, new tube placements, service installation) standardized across concepts? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 1.0 |
| | 3. Are new prices indexed (or otherwise regularly updated), guaranteeing periodic, incremental increases? 0.0 =no 0.5 =indexing to minimum wage or similar category 1.0 =indexing to cost calculations or similar category | 1.0 | 0.5 | 0.5 |
| | 4. Are prices published annually or otherwise made publicly available? 0.0 =not periodically 0.5 = periodically but not for all price change 1.0 =fixed periodic publication for all price changes | 1.0 | 1.0 | 1.0 |
| | 5. Are pricing decisions based on cost of service indicators or other cost based methodology? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 0.5 | 1.0 |

| Cost Recovery Measures 2: Collection Practices | | | | | |
|---|---|-------------|------------|--|------------|
| | 6. % of meter installation 0.0=for lowest 3 0.5=middle 3 1.0= highest 3 | 1.0 | 0.5 | | 0.5 |
| | 7. Is service routinely (partially) suspended for non-payment? 0.0= no 0.5= some 1.0= formal policy | 1.0 | 1.0 | | 1.0 |
| | 8. Are clandestine connections routinely monitored and eliminated? 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 1.0 | | 1.0 |
| | 9. Are new, "easier to use" payment options created to promote bill payment? (e.g. electronic modes of payment, raffing household items, more payment centers and customer relations windows) 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 0.5 | | 1.0 |
| | 10. Are civic outreach programs created to promote a "culture of payment?" (e.g. pricing comparatives, advertising benefits of payment for service development) 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 0.5 | | 1.0 |
| FISCAL SUBTOTAL | | 10.0 | 7.5 | | 9.0 |

| | | | | |
|----------------------|--|-----|-----|-----|
| OPERATIONAL POLICIES | <p>11. Are "leaks elimination campaigns" undertaken in order to increase water supply and regularize pressure throughout the network? 0.0 =no 0.5 =somewhat 1.0 =yes</p> | 1.0 | 1.0 | 1.0 |
| | <p>12. Is pressure regularized throughout the network by creating elevated storage tanks or applying "breakers" in the entry points throughout the grid? 0.0 =no 0.5 =some 1.0 =yes</p> | 1.0 | 1.0 | 1.0 |
| | <p>13. Does the network become more automated, or "digitalized" (more measurement of how much, and where, and where, water enters and exits the grid) 0.0 =no 0.5 =partially 1.0 =yes</p> | 1.0 | 0.5 | 1.0 |
| | <p>14. Have water quality testing and procedures been routinely implemented? (as measured by increase in potable water treatment plants, adhering to testing methodology (anything above chlorination), tracking water quality indicators) 0.0 =no 0.5 =some 1.0 =yes</p> | 1.0 | 1.0 | 1.0 |
| | <p>15. Are sanitation treatment plant facilities constructed and/or in operation? 0.0=no, or treatment <10% 0.5= under construction and will be in construction with treatment > 90% 1.0= yes, in operation with treatment >90%</p> | 1.0 | 0.0 | 1.0 |
| OPERATIONAL SUBTOTAL | | 5.0 | 3.5 | 5.0 |

| INSTITUTIONAL POLICIES | | | | | | |
|------------------------|--|------------|------------|------------|--|--|
| | 16. Level of professionalization of work staff: is workforce made to undergo further training? Are employees well suited for their position given their training, education and experience? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 1.0 | | |
| | 17. Institutional organization regarding human resources: are new protocols for work staff and job responsibility created and clearly communicated to work staff? Are there redundancies and inefficiencies as measured by interview data and examining human resources chart? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 0.5 | | |
| | 18. The employee/1000 connections ratio 0.0= >7 0.5= 5-7 1.0= >4 | 1.0 | 0.5 | 0.5 | | |
| | 19. Are new efforts to increase responsiveness to consumers implemented? [e.g., new customer attention centers created, new telephone hotlines created, manned, information tracked] 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 0.5 | 1.0 | | |
| INSTITUTIONAL SUBTOTAL | 20. Does water utility have a functioning website independent from city hall? 0.0 =no 0.5 =yes, but not high functioning 1.0 =yes | 1.0 | 0.0 | 1.0 | | |
| | | 5.0 | 3.0 | 4.0 | | |
| | | | | | | |
| | | LEON | CELAYA | IRAPUATO | | |

| | | | | |
|------------------------------|---|-------------|-------------|-------------|
| FINAL NUMERICAL SCORE | | 20.0 | 14.0 | 18.0 |
| FINAL NOMINAL SCORE | When scale is divided into thirds such that 20/3=6.6; cases of Low Reform > 6.6, cases of Medium Reform fall between 6.6-13.2, and cases of High Reform are > 13.2. | HIGH | HIGH | HIGH |

Chapter Five: Mexico State's Municipal Cases in Comparative Perspective

5.1. INTRODUCTION

This chapter compares the three municipal cases within Mexico State (Naucalpan, Toluca, Nezahualcoyotl), which reflect the most varied municipal policy reform outcomes of the state under study. The dependent variable scores range considerably: from high in Naucalpan (16), medium in Toluca (12) and low in Nezahualcoyotl (5). The three dimensions of the dependent variable in question are fiscal, operational and institutional policies (see Appendix 5.1), which together comprise the extent to which the reform policy was successfully implemented.

This chapter shows how in Mexico State, mayoral-business coalitions operated as the first explanatory variable leading to municipal reform outcomes in water and sanitation. If a mayor's constituent base is primarily composed of upper and middle class consumers, the mayor may be able to use reforms to help establish or further promote their political career, promote the party, and position them favorably within the party hierarchy. In contrast, if a mayor's constituent base is primarily composed of the urban poor, reform will be difficult because cost recovery policies are particularly unpopular with these constituent groups due to their limited income. I argue that local business will support the reform process (either actively or passively) if the municipality is dominated by water intensive industrial production, and the water-intensive business community is able to organize around water policy and align with a pro-reform mayor and his/her team. Establishing the status of the mayoral-business coalition is the first step of the analysis for each of the three municipalities in this chapter.

Mayoral-business coalitions took on variant forms in the three cases under study; however in all three cases the mayor was a dominant force. Despite both being from the PAN party, Naucalpan's coalition was strong, while Toluca's coalition was medium low. I argue that Naucalpan was able to forge a strong mayoral-business coalition because the municipality counted on a strong water intensive business group for support, while Toluca's business sector was not water intensive, and did not support the reform process. In addition, Naucalpan benefited from strong mayoral leadership that was sustained over multiple administrations, while Toluca's mayors did not prioritize water service improvements as a policy initiative. I argue that the primary consumers in Toluca were predominantly low and middle income consumers who were opposed to metering and increased water prices. In the absence of strong business support for reforms, Toluca's mayors played lip service to the PAN party line of modernizing service, but did not take on extensive reform initiatives, leading to a moderate outcome. In contrast, Nezahualcoyotl, as a PRD city, made no qualms about catering directly to the urban poor, who would be disproportionately hurt by reforms. In the absence of a strong water-intensive business sector, Neza's reforms were low.

Second, I analyze the extent to which fiscal, operational and institutional reforms are undertaken in each of the three cases. These three dimensions of the dependent variable are outlined with accompanying indicators in Appendix 5.1. Each section describes how these developments occurred, and how the strength of the mayoral-business coalition was able to adopt reform initiatives and help implement them over time. In this section, I explain how reformers

took advantage of state level resources, to the extent available in Mexico State, and how this secondary explanatory variable shaped the municipal policy outcome.

5.2. MEXICO STATE INSTITUTIONAL SUPPORT (MEDIUM)

In the case of Mexico State, the amount of support provided has been medium, lower than the Guanajuato state government but higher than the Veracruz state government. As described in Chapter 3, the ability of the Mexico State water commission to act as a source of regulation and institutional support for municipal water provision was compromised in the initial periods of decentralization. During the first wave of decentralization, the Mexico State water commission became a seller of bulk volumes of water to its municipalities, which created a contentious relationship over the years as the municipalities were unable, or unwilling, to pay for the water they received from the state water commission. Unlike the Guanajuato state water commission (which never provided water service for its municipalities), the Mexico state water commission has been unable to be an impartial arbiter and regulator for municipal water utilities because of the conflictive relationship stemming from the accrual of historic debts. Because of the weakness of the Mexico State water commission in managing support for its water utilities, but the interest of Mexico State governors in addressing water related issues in the state, other state level institutional supports have been created for municipal water provision.

Along the three dimensions reviewed in Chapter 2 (legal, pricing and technical), the Mexico State score is moderate. First, an adequate legal framework exists that promotes municipal policy reform in the water sector, but the Mexico State Water Law recommends that the mayor be directly responsible for appointing the president of the water utility's board of directors. Such a lack of separation from the board's management decisions and city hall biases the process towards mayoral control. Second, although the Mexico State Water Law indicates that the State Water Commission should help promote financial viability in municipal water utilities, coordination of the issue by a third party, the Mexico State Treasury Institute, was seen as necessary given the state water commission's feud with the municipalities. The Treasury Institute began a water and sanitation services working group, attempting to help municipal water utilities standardize the tariff setting structure and "achieve tariffs that allow them to achieve self-sufficiency."¹⁴⁰ The institute has managed to do what the state water commission has been unable to do: promote an initial interest in standardizing tariffs across political parties and gather accounting and commercial information from municipal water utilities. However, the state-level price restructuring has had limited success in eliminating politicization of price schedules because prices are not indexed. Instead, prices are subject to politicization, in large part because it is more of a forum for municipal level interests to set prices rather than a technical evaluation of costs for price setting. Third, the Mexico state water commission has developed virtually no technical assistance programs for municipal water utilities, in particular compared to the Guanajuato case. Therefore, if reform agents were inclined towards reform, they were able to access only a limited number of resources from the state government.

¹⁴⁰ The water pricing working group is composed of representation from municipal water utilities, and the Institute and CAEM are seen as facilitators, allowing the municipalities, rather than the state, to dictate the tariff restructuring agenda. The institute claims that 80% of the state's municipalities participate in the workshop (interview with Cueto Estrada 2008).

5.3. NAUCALPAN: HIGH REFORM CASE

Naucalpan is a prominent industrial center in Mexico State, contributing as much as 10% of the state's GDP.¹⁴¹ Like the majority of Mexico's municipalities, for over sixty years Naucalpan had been governed by the PRI-- until its conversion to the PAN in 1997 in a historic election. The 1997 Naucalpan PAN win was notable because it became one of the most important municipal strategic hubs for the PAN in Mexico-- dubbed the "crown jewel" because of the economic concentration it represented.¹⁴² Although Naucalpan's water utility, (Organismo de Agua Potable, Aclantarillado y Saneamiento, OAPAS), became decentralized from the municipality in 1992¹⁴³ (or corporatized, as discussed in Chapter 1), it was not until the first PAN administration came to power in 1997 that a substantial reform process began. In just over ten years, Naucalpan's water utility has undertaken a substantial amount of reforms, due to a strong mayoral-business coalition that began under the first PAN Mayor. What is notable in the Naucalpan reform process is the extent to which mayors used their performance record in improving water services as a policy platform to establish their political careers within the PAN. The reformers ability to reap political benefits from the reform process has lessened the political costs associated with cost recovery policies. Some of these political benefits include sustaining the PAN mayorship over several administrations, running for higher political office, and consolidating power within the PAN party.

5.3.1. Naucalpan's Mayoral-Business Coalition

The mayoral-business coalition in Naucalpan was led by mayoral intervention throughout consecutive PAN administrations (1997-2009). The reform process was buoyed by a series of mayors who were able to use the improved performance record brought about by reforms to curry favor with their constituency, and consolidate their power within the PAN party.

The Naucalpan water utility was in dire conditions before the reform process began in 1997. Despite the rapid industrialization that had occurred in Naucalpan during the post war boom, water services remained primitive for decades. Lacking fiscal resources for the professional installation of a piped network, in the 1970s, citizens were enlisted to build the network infrastructure, while the municipality provided the basic tools (interview with Badillo, 2008). By the 1990s, the lifespan of the piped infrastructure had been exceeded, and inadequacies in service provision abounded. Numerous leaks, low water pressure, and excessive flooding throughout the city were inherent to Naucalpan's water service provision. By the early 1990s, the water utility's performance was dismal: 52% of the city's neighborhoods received water service once every three days, six neighborhoods did not receive water or sanitation service, and there were thirty high flood zones throughout the city.¹⁴⁴ Citizens would periodically petition the municipality for service improvements, even offering to help finance

¹⁴¹ Naucalpan contributes 1% of national GDP. naucalpan.gob.mx.

¹⁴² "Institutional Revolutionary Party Loses Several Key Races to Opposition Parties in Local Elections in November;" *SourceMex*, November 13, 1996; "El PAN busca mantener el corredor azul; prepara el PRI un *golpazo* en Naucalpan," *La Jornada*, June 16, 2000.

¹⁴³ Gobierno del Estado de Mexico: Secretaria de Desarrollo Urbano y Obras Públicas, *Evaluación 1997*.

¹⁴⁴ "Suspenden concesión del agua," *Reforma*, January 12, 1996.

leaks reduction and alleviate flooding near their homes¹⁴⁵ -- but the cycle of low water prices and poor service remained in place. The PRI's response at the time was to attempt to privatize the water utility, initiating a concession bid to a private contractor in 1994.¹⁴⁶ However, both the left leaning PRD and right leaning PAN mounted obstacles to the privatization contract and the PRI's handling of the concession bids, and citizens resisted the idea of installing domestic meters and increasing water prices.¹⁴⁷ By 1996, the privatization contract had fallen through, and the water utility remained deficient and without access to capital for investments necessary to expand coverage and improve service quality.

When mayoral candidate, José Luis Duran, won the Naucalpan municipality for the PAN in 1997, it was considered a historic defeat and the beginning of a shift in the city's local politics. Duran came from a militant and ambitious political family, one that was deeply rooted in the PAN party and whose political ambitions extended beyond local politics. The strength of the industrial sector in Naucalpan made it a prime municipality to switch to the PAN, which although a newly competitive party in Mexico, had represented business in Mexico for decades. Although courting low income voters in order to win votes, Duran's primary constituents were the business sector, and middle and upper class voters. Because the business sector and middle-upper class voters would support highly visible service improvements, the new mayor was inclined towards a reform process that he would make sure was visibly branded as belonging to himself and his party. By the time mayor Duran left office in 2000, his reform agenda within Naucalpan and the water utility was well under way, the PAN had taken the presidency in a historic election, and the PAN's hold in Mexico State's municipalities was growing, as evidenced by their electoral sweep of 30 municipalities in 2000.¹⁴⁸ Duran, his sights set on higher office, was the PAN candidate for the Mexico State governorship in 2000, where he narrowly lost to the PRI candidate.¹⁴⁹

Although Duran could not run for immediate re-election as mayor of Naucalpan, he was able to shape the city's politics and ensure that his people were instated in city hall during future administrations.¹⁵⁰ The mayor from 2000-2003, Eduardo Alfredo Contreras, was Duran's secretariat in the 1997-2000 administration, and represented the same type of reform politics at Naucalpan's water utility: withstanding protests against price increases, supporting the general manager in hydraulic work projects, and branding service improvements as PAN innovations. Another local PAN politician from Duran's administration followed the Contreras administration—from 2003-2006, Angelica Moya Marin, city council person (*regidora*) from the 1997-2000 administration, became mayor of Nauaclpan on the PAN ticket. Water as an

¹⁴⁵ "Ofrecen vecinos cooperar para mejorar servicios," *Reforma*, October 7, 1996; "Solicita OAPAS la ayuda de colonos e industriales," *Reforma*, August 1, 1996.

¹⁴⁶ In 1994, the 15 year contract was awarded to a partnership consortium between TRIBASA (Triturados y Basalticos), a Mexican water treatment company Epcysa, and Britain's Thames Water. The consortium was to invest \$US 50 million in the project. Sources: *SourceMex*, March 23, 1994, "Municipal Water and sanitation Projects Create New Opportunities for Mexican and Foreign Engineering and Construction Companies;" interview with Badillo (2008).

¹⁴⁷ "Suspenden concesión del agua," *Reforma*, January 12, 1996.

¹⁴⁸ Instituto Electoral del Estado de México.

¹⁴⁹ Duran won 34% of the vote and PRI candidate Montiel won 41%. "Governing Party Wins Election in Mexico State, but Loses to Coalition Candidate in Nayarit," *SourceMex*, July 7, 1997.

¹⁵⁰ "El PAN busca mantener el corredor azul; prepara el PRI un *golpazo* en Naucalpan," *La Jornada*, June 16, 2000.

important state wide public policy was on Moya's radar when she began her tenure; she had previously been a local legislator and president of the Aquifer Resources Commission. It was not surprising that the Duran-Contreras agenda continued during Moya's mayorship—many of the local city hall appointments made for Moya's administration were “recycled” from the previous administration.¹⁵¹ Finally, Duran became mayor again in Naucalpan for the 2006-2009 administration. Despite not being able to serve consecutive mayorships because of Mexico's reelection prohibition, Duran was able to dictate the terms of the reform agenda in Naucalpan from 1997-2009 by placing members of his inner circle in mayoral positions, helping family members attain political positions throughout the city and state, and consolidating his position within the PAN party.¹⁵²

One of the PAN's dominant constituencies in Naucalpan is the business sector, who had previously been underserved by the city's water utility. In the early 1990s, services were so deficient and the water utility so bankrupt industrialists had been asked by the water utility on several occasions to contribute financing to help diminish flooding in the industrial parks, and to help improve the deficient drainage systems.¹⁵³ When taking on reforms post 1997, PAN mayors were able to count on support from a strong industrial concentration of business consumers whose industrial production was reliant on water.

Naucalpan's industrial manufacturing accounts for 57% of the municipal economy. The majority of these businesses are in industries that are heavily reliant on water; industries such as chemicals, paper/pulp processing, metallics, clothing manufacturing, electronics and food production all account for 46% of the municipal economy, and generate approximately \$MXP 32.2 million per year.¹⁵⁴ Similarly to Irapuato and Celaya in Guanajuato State, the water reliant industries in Naucalpan were dispersed across heterogeneous sectors, and not organized around the same sector-specific trade association, as was the case of Leon. Therefore, in Naucalpan, business was not as participatory as they had been in Leon, and mayors were the primary catalyst for reforms in the mayoral-business coalition. It should be noted that while Naucalpan's water reliant industries were not participatory, as they had been in Leon, they were economically powerful, contributing \$MXP 32.2 million annually to the local economy, as compared with Celaya (\$MXP 16.4) and Irapuato (\$MXP 11.0). The industrial sector was supportive of reforms that would provide a higher quality of services, help expand the city's economic development, and contribute directly to the development of their industrial corridor.

In this context, the reform agents created a new institutional design to insulate the reform process from discretionary management and anti-reform forces. Rather than inscribe a board of directors bylaws unique to Naucalpan (as the Guanajuato municipalities had), the reformers in Naucalpan followed the general bylaws for the creation of a board of directors put forth in the Mexico State Water Law. The bylaws state that each water utility will have one president who is selected by the mayor, a city hall representative, a representative from the Mexico State Water

¹⁵¹ “Reciclan funcionarios: gobierno, nuevos gabinetes, Naucalpan, recurre Moya a nueve elementos de la pasada administración para armar su gabinete,” *Reforma*, August 27, 2003.

¹⁵² “Cuadros desgastados, la mayoría de los candidatas en el Edomex: los Durán Reveles del PAN, Urbina Bedolla del PRI, y Martínez Miranda del PRD, de nuevo en planillas,” *La Jornada*, February 14, 2006.

¹⁵³ “Buscan empresarios mitigar inundaciones,” *Reforma*, June 20, 1996; “Solicita OAPAS la ayuda de colonos e industriales,” *Reforma*, August 1, 1996.

¹⁵⁴ Instituto Nacional de Estadística y Geografía, México, INEGI economic census data, 2004.

Commission, a commissioner, and three civic representatives from neighborhood associations, commercial and industrial sectors, respectively. The president has the tiebreaking vote, and the general manager may have “voice, but no vote.” With this design, the mayor’s influence was built into the board of directors, because the mayor could either appoint themselves as president, or appoint a president that sits at his/her bequest. In Naucalpan, the mayor appointed themselves as president (interview with Badillo, 2008). In addition, the Mayor Duran and subsequent mayors had no problem finding civic society representatives that mirrored their own reform agenda, and would follow city hall’s lead in undertaking reforms.

With city hall at the helm of the reform process in Naucalpan, the general managers that were chosen to undertake reforms were loyal to the PAN party, engineers and accountants inclined towards undertaking reforms, and in some cases, receiving their positions as rewards for prior party loyalties, or in order to be primed for future political offices. Therefore, the general manager position of the Naucalpan water utility was a political office for the local party hub, one that inclined the general manager towards high profile reform measures and branding service improvements for the party. The first general manager, Armando Perez Moreno, presided over the first Duran administration and was set to become Contreras’s general manager before he was made to resign by party leaders during the first year of his second term over corruption charges.¹⁵⁵ The second general manager, Raymundo Garza Vilchis, who served for two consecutive terms from 2001-2006, was a PAN loyalist who worked as the Mayor Contreras’ personal assistant before becoming water utility director. Finally, the general manager Manuel Gómez Morín (2006-2009), shares the same name as his grandfather, the famous founder of the PAN. The general manager Gomez served in the first Duran administration as Secretariat of City Hall and later in the Governance office of the municipality before becoming general manager of the water utility.¹⁵⁶ Gómez’s efforts to publicize the water utilities reform efforts and service improvements extended beyond advertising for the party, he has been rumored to want to someday hold the mayorship in Naucalpan.¹⁵⁷ Both the mayors elected after Duran as well as the general managers appointed during the 1997-2009 period were known to be part of Duran’s inner circle and controlled, to some degree, by the man who initiated reforms during the first PAN administration-- Mayor Duran.¹⁵⁸

In sum, the Naucalpan reform agents were PAN party leaders, controlled to some degree by Mayor Duran, who initiated and helped sustain reforms over time by branding improved water services with the PAN party name. These politicians were supported by a strong industrial business community who were heavily reliant on water, but not participatory in the reform process. Mayor Duran and other reform agents were able to personally take credit for the success of reforms with their constituents, and capitalize politically on the performance record of the water utility during this period. The institutional design created in Naucalpan built mayoral intervention into the reform process. As the following section will demonstrate, the party could afford to resist popular protests against politically costly aspects of reform because it was able to

¹⁵⁵ “La Capilla,” *La Jornada*, May 2001; “Destituidos, mil 681 bureacratas,” *Reforma*, November 5, 2001.

¹⁵⁶ “Recicla PAN a funcionarios,” *Reforma*, August 17, 2000.

¹⁵⁷ *Milenio*, August 11, 2007.

¹⁵⁸ “Desacreditado por corrupción y escándalos el PAN enfrentará los comicios mexiquenses,” *La Jornada*, June 10, 2002.

take credit for performance improvements with their constituents, who were industrialists and middle and upper level voters, rather than lower income voters most hurt by price increases.

5.3.2. Municipal Policy Reform Outcome

Turning to the second step in the analysis, the following section describes how reform agents in Naucalpan went about implementing reforms over the span of multiple municipal administrations. Key to the reform implementation process is the techniques used by reformers to gain societal acceptance for reforms. In step II of the analysis, I describe how Mayor Duran and his team were able to reap political rewards from improvements in water service, and how this type of credit claiming was built into the PAN governance project in the municipality. This section also describes the precarious relationship the municipal reformers had with the state government, and the bifurcated level of support they received from different entities within the PRI Mexico State government.

5.3.2.1. Creating Cost Recovery (Fiscal) Policies

The first step in the reform process was to advertise widely that the prior PRI administrations had left the city's water services capacity not only physically deficient, but also bankrupt. Upon taking office in 1997, Mayor Duran announced:

[Prior] administrations' destructive management has generated an enormous debt from OAPAS [Naucalpan's water utility] and the municipal treasury. This has resulted in the evident deterioration of equipment, the poor administration of [water services] and [limited] urban development.¹⁵⁹

As the new PAN administration began, the water utility reported a debt of \$MXP 83 million and without the financial capacity to undertake any form of hydraulic construction.¹⁶⁰ The new general manager, Armando Pérez Moreno, advertised that the water utility had historic debts with the Mexico State Water Commission (\$MXP 67 million), the electric company (\$MXP 12 million), among others. Pérez made sure to establish that the new administration would have to remedy the sins of prior administrations:

Supposedly decentralized water utilities generate income, but this [income] has become an easy form of funds, a personal account with liquid assets and with very poor systems of accountability, there is no way of knowing where the money went—this is why OAPAS is bankrupt.¹⁶¹

Under these dire circumstances, the water utility was able to announce an annual budget of \$MXP 193 million, over 70% of which would need to come from user fees.¹⁶²

By advertising that the water utility was insolvent, it gave the water utility more leeway to begin a politically contentious process of regularizing price schedules, increasing water prices, and implementing more stringent collection practices. The key objective was to increase

¹⁵⁹ "Cuestiona situación financiera," *Reforma*, December 31, 1996.

¹⁶⁰ "Reportan en 'quiebra técnica' al Organismo de Agua Potable—Afirma el director de OAPAS que tienen una deuda de \$83 millones," *Reforma*, January 31, 1997.

¹⁶¹ *Ibid.*

¹⁶² "Reportan en 'quiebra técnica' al Organismo de Agua Potable—Afirma el director de OAPAS que tienen una deuda de \$83 millones," *Reforma*, January 31, 1997.

revenues, and begin building public works that the reformers could use to legitimate the price increases in the eyes of the public. During the first reform administration, Mayor Duran allowed for some initial price increases, which alarmed low income neighborhoods, who had previously been paying \$MXP 357 annually, and saw the annual rate rise to \$MXP 743 in 2000. Although neighborhood leaders protested and strikes were threatened, the mayor diffused initial protests by providing discounts for on-time payments.¹⁶³ Overall, Mayor Duran was not sympathetic to public manifestations from lower classes, choosing to take a hardliner stand against pressure for water price increases.

During the second reform administration, Mayor Contreras had the good fortune to be supported by efforts made at the state level to regularize price schedules for water service, and implement annual updates for water prices. As noted in Chapter 3, the Mexico State water commission did not play a role in helping municipal water utilities update their price schedules (as had the Guanajuato state water commission), because of the contentious relationship between the commission and the municipalities over historic debts. Instead, the Mexico State Treasury Institute began a water and sanitation working group in 2001, serving as a liaison between municipalities and the state congress in attempts to regularize price schedules, create differentiated consumption blocks where possible, and began the process of implementing annual price increases. The Treasury Institute provides a forum for municipalities to streamline the process of updating their price schedules, and also helps represent them in the state congress, where prices get approved. Therefore, a state wide inertia began in 2001 towards decreasing subsidies for water service, and making water service more fiscally self-sufficient. However, because participation in the workshop is voluntary, and pricing policies are not mandated by the state but still ultimately decided by the municipalities, local governments in Mexico State could choose to opt in or out of creating cost recovery pricing policies. But for the water utilities that opted to regularize their price schedules and increase water prices, the state level influence of the Treasury Institute served as a key resource and legitimation of cost recovery pricing policies.

Relying on the state level coordination of price increases, in particular other PAN municipalities in Mexico State who were also interested in regularizing water prices, the Naucalpan reformers were able to increase water prices by 30% in 2003.¹⁶⁴ For the lower class domestic consumption rates, the increase from 2002 to 2003 was nearly 100%. These price increases were accompanied by efforts to install domestic consumption meters more widely through the cities' neighborhoods, a policy that did not go over well with low-income neighborhoods. In 2003 and 2004, public manifestations and organized strikes headed by neighborhood leaders made headlines,¹⁶⁵ where users in the lowest income bracket protested that doubling their water bills while only delivering service every two or three days was unacceptable. They also petitioned against meter installations, fearing inaccurate readings and more increases

¹⁶³ "Exigen ajustar precio del agua- Piden vecinos aumentar precio a 392 pesos y no los 743 fijados por la Alcaldía; anuncian movilizaciones," *Reforma*, February 16, 2000.

¹⁶⁴ "Subirán tarifa de agua-Aprueban elevar hasta en un 30% la cuota en el costo líquido en 17 municipios de la entidad," *Reforma*, November, 14 2002; (interview with Cortes 2008).

¹⁶⁵ "Exigen no encarece agua-Comunidad. Protestan al menos 300 vecinos de la zona popular del Naucalpan por aumentos; ofrece OAPAS buscar solución," *La Reforma*, May 9, 2003; "Inconforma tarifa del agua-Comunidad. Portestan vecinos de la zona popular por cuota anual del líquido," *Reforma*, April 15, 2004.

on water bills if they were no longer allowed to make one time annual payments.¹⁶⁶ The water utility's general manager was able to mitigate social protests with several strategies. First, he was able to justify increases as decisions made in conjunction with the state and other municipalities, a phenomenon that was bigger than just Naucalpan politics, and therefore outside of his control. Second, he noted that unitary family households could abstain from meter installations, but not multiple family households or commercial centers, mitigating the fear of meter installations to the most vulnerable groups.¹⁶⁷ Third, the water utility, in conjunction with both the municipality and state level initiatives, implemented a series of discounts for consumers that were intended to aid the most vulnerable groups while simultaneously promoting payment: early payments received a discount, as did the elderly, the disabled, widows without income and the most vulnerable income groups.¹⁶⁸ These measures were intended to lessen the impact of price increases while continuing to implement cost recovery pricing policies, even amongst the poorest sectors.

Throughout the five sequential PAN administrations, the water utility strengthened their fee collection practices and increased revenue generation by limiting service for non-payment¹⁶⁹ and implementing wide scale meter installations.¹⁷⁰ These efforts were augmented by a large scale advertising campaign that became quite sophisticated by the 2006-2009 administration. As part of their public relations campaign, the water utility developed a mascot, a logo and pricing comparatives pitting water prices against the more expensive cost of common everyday items, including other utility expenses. They developed memorabilia, their own bottled water service with OAPAS logos, and massive education programs for school children, tying the logic of water conservation to bill payment. OAPAS carefully advertised and labeled construction projects as being funded by user fees, and emphasized the connection between increased fees and new hydraulic infrastructure (interview with Del Rio, 2007). While price increases continued,¹⁷¹ the water utility strategically applied pressure valves: raffling cars and household appliances for consumers who paid their bills on times, providing discounts for certain sectors¹⁷² and deciding not to install meters or move to differentiated consumption rates for the most vulnerable populations (interview with Morin, 2008).¹⁷³ These concessions were a way for Naucalpan reformers to mitigate protests from the populations most hurt by reforms, while at the same time undertaking pricing policies that generated large revenues from middle income, commercial and industrial consumers. These latter groups were the primary constituent groups of the PAN, who

¹⁶⁶ "Protestas en 12 colonias de Naucalpan por el incremento en tarifas de agua," *La Jornada*, April 29, 2003; "Exigen no encarece agua-Comunidad. Protestan al menos 300 vecinos de la zona popular del Naucalpan por aumentos; ofrece OAPAS buscar solución," *La Reforma*, May 9, 2003.

¹⁶⁷ "Exigen no encarece agua-Comunidad. Protestan al menos 300 vecinos de la zona popular del Naucalpan por aumentos; ofrece OAPAS buscar solución," *La Reforma*, May 9, 2003.

¹⁶⁸ As defined by persons making less than three times the minimum daily wage in Mexico State. "Subirán tarifa de agua-Aprueban elevar hasta en un 30% la cuota en el costo líquido en 17 municipios de la entidad," *Reforma*, November, 14, 2002.

¹⁶⁹ "Buscan recuperar adeudos de agua," *La Reforma*, January 25, 2002; "Justifica corte de agua," *La Reforma*, December 22, 2007; "Tienen 35% de morosos," *La Jornada*, January 20, 2008; "Restringen el servicio de agua a morosos," *El Sol de Toluca*, February 21, 2007; "Restringen el agua a morosos en Naucalpan," *El Milenio*, April 19, 2008.

¹⁷⁰ "Entran en operación medidores de agua para lectura remota," *El Milenio*, February 22, 2009.

¹⁷¹ "Aumentan cobro del agua 13% para Naucalpan," *Alfadiario*, November 9, 2007.

¹⁷² "Rectifica OAPAS y ofrece descuentos," *Reforma*, September 4, 2009.

¹⁷³ "Mantendrá OAPAS de Naucalpan cuota anual en zonas populares," *El Milenio*, February 1, 2009.

were sold on the reform process through highly visible service improvements, as the following section demonstrates.

5.3.2.2. Creating Reforms in Operational and Institutional Practices

From the onset of the first reform administration, the Naucalpan water utility insisted on reinvesting revenues generated from user fees into network infrastructure construction, rather than rerouting funds to the municipal treasury (interview with Paczka, 2008; interview with Badillo, 2008). In 1997, OAPAS pledged \$MXP 75 million in hydraulic construction for the following five years.¹⁷⁴ They began to digitalize and modernize many aspects of their service, including meter readings,¹⁷⁵ their water extraction readings (*macromedicación*), and updating network infrastructure maps. The Naucalpan water utility initiated wide-scale pipe replacements and leak detection units in order to reduce the amount of lost water, and update the lifecycle of the piped network (interview with Paczka, 2008). As of 2011, Naucalpan was not treating its wastewater, but had a sanitation treatment plant under construction, which is a considerable achievement given the low percentage of sanitation treatment in Mexico State (22% as of 2010) (Comisión Nacional del Agua (2010). The pro-reform municipal administrations allowed the operational management of the water utility to continue to modernize, with a business centric approach:

We began to function like a private company, and we began to reinvest all of the revenues, absolutely all of the revenues, back to the water utility. We began to take on very important hydraulic projects. (interview with Badillo, 2008)

A number of institutional reforms were undertaken. Increased training of employees was undertaken, and a new level of professionalization achieved in a short amount of time. Both OAPAS repair teams and employees in the commercial centers wore new matching uniforms with OAPAS logos and an updated professional appearance. The water utility also focused on improving the components of service delivery that most affected consumers. For example, they were able to reduce the response time for repairing a leak from several weeks to twenty four hours—but instead of patching the pipes, they replace the entire pipe from the house to the street. The water utility installed a consumer hotline and a customer attention center that tracked each petition and even called back consumers to see if they were satisfied with the service provided. The water utility went so far as to employ customer satisfaction surveys in order to get consumer feedback on high impact areas that could be improved (interview with Del Rio, 2008). Each new initiative and service improvement was widely advertised by the water utility. The ads appeared in the blue signature color of the PAN party, as did the water utility's blue mascot, "Aguita." The public relations department was innovative about making the water utility, along with its general managers, widely known throughout the community through press releases, field visits and neighborhood meetings. This phenomenon was particularly acute with the 2006-2009 administration of General Manager Manuel Gomez Morin, who was a close friend of Mayor Duran's and rumored to be a potential pick for the PAN ticket in Naucalpan future races.

¹⁷⁴ "Irán \$75 millones a obra hidráulica," *Reforma*, November 5, 1997.

¹⁷⁵ "Cambiarán medidores," *Reforma*, February 3, 2004.

5.3.3. Conclusion

In sum, the Naucalpan reforms were led by the PAN mayoral administrations that began in 1997 under Mayor Duran, and continued into his second term in 2006. These reforms were supported by the business sector, but business was not an active, participatory actor. Governing the Naucalpan municipality in between the Duran administrations were PAN loyalists within the Duran circle who were rewarded with mayorships, rewards that extended to the general manager positions within the water utility. The reform agenda in Naucalpan appealed to the PAN's constituents because the water utility and mayors were able to advertise that the service improvements was part of the new type of governance that the PAN offered citizens, helping to sustain their hold on the municipality for five consecutive administrations. While branding service improvements with the party insignia promoted support for the PAN among middle income users and industrialists, reformers had to use a different strategy with lower income voters. The water utility chose to give some concessions, such as limiting meter installations, limiting differentiated price blocks and providing some discounts to vulnerable populations. However, prices did increase for lower income groups, and the PAN administrations withstood this political pressure in favor of protecting a reform process for which they were able to successfully take credit and benefit politically.

5.4. TOLUCA: MEDIUM REFORMS

Toluca, the capital city of Mexico State, was also run by a PAN government for multiple decades, but yet experienced a different service provision outcome than Naucalpan. While Naucalpan's PAN mayors were inclined to initiate reforms and capable of sustaining them over multiple administrations, the Toluca PAN governments were unwilling, or unable, to introduce a complete overhaul to the city's water provision process, and instead played lip service to the idea of reform, without shouldering the political costs of extensive reforms. I argue that this was due to a medium/low amount of support from the business sector, that was highly industrialized, but whose industrial production was not heavily reliant on water. This lack of commitment to the reform process led to a medium degree of reforms: higher in some aspects of service provision, and lower in others, but much lower overall than the Naucalpan reforms. The three PAN governments that ran Toluca's city hall lacked the leadership of a Duran like figure, strong pressure from the business community like in the Leon case, and failed to coordinate their policies across the three PAN administrations. While these mayors wanted credit for building large public works, they did not invest in more "invisible" projects and follow them over time: such as updating underground infrastructure, updating accounting software and making their workforce more efficient. Instead, several mayors made campaign promises and begun projects that were never completed. As one Toluca water utility worker noted, "sometimes the mayor wants us to do things that are not technically feasible...but he has his political obligations" (anonymous respondent, 2008). Because the state government did not serve as a strong impetus for reform, and because the resources available from the state government were beneficial only to municipalities already inclined towards reform, the Toluca water utility did not experience a strong level of support for reform from the state government. Overall, Toluca's mayors were the principle actors that were in a position to initiate and sustain major reforms, and despite playing lip service to the idea of reform, they did not take on extensive reforms in the sector.

5.4.1. Toluca's Mayoral-Business Coalition

Toluca's water utility is one of the oldest in the country, decentralized from the municipality as far back as 1981 as a precondition for a World Bank loan that was part of a larger pilot program to create basic infrastructure in Mexico during the 1980s.¹⁷⁶ Like the other municipalities in Mexico State, Toluca's water utility went through a further process of decentralization and consolidation in the early 1990s that was initiated by the Mexico State government.¹⁷⁷ Despite this level of formal decentralization, however, like other municipalities in Mexico State, Toluca's mayor continued to call the shots from city hall because according to the Mexico State Water Law, the mayor sits on the water utility's board of directors as president of the board. The institutional makeup of Toluca's water utility is the same as Naucalpan's: the president of the board is the mayor, along with a city hall representative, a Mexico State Water Commission representative, a commissioner and three civic representatives from the city's three types of users: residential, commercial and industrial. The president has the tiebreaking vote, and must authorize the appointment of remaining members, which ensures that he/she will select members that agree with his/her position. Therefore, the question of reform sits squarely on the shoulders of the mayor and his/her level of inclination towards reform.

The PAN's historic win in Toluca in 2000 brought in a series of mayors who paid lip service to hydraulic issues but did not take on sweeping reforms. The first PAN mayor, Juan Carlos Nuñez Armas (2000-2003) was knowledgeable about hydraulic services as a civil engineer, and as former president of the legislative Aquifer and Natural Resources Commission participated in the drafting of the Mexico State Water Law. During his term, the Toluca water utility began to participate in the state level prices standardization working group, and city hall supported the water utility through fiscal transfers for infrastructure construction, at a consistently much greater level than the subsequent two mayors.¹⁷⁸ However, the level of leadership from the first PAN Mayor in Toluca was nothing compared to the ambitious Duran in Naucalpan who saw a political opportunity in drastically overhauling Naucalpan's service provision. The following two mayors in Toluca, Armando Enrique Flores (2000-2006) and Juan Rodolfo Sanchez Gomez (2006-2009), did not prioritize improving service provision as a major policy of their administrations. Instead they focused on more general large public works projects in other sectors, the latter mayor famously beginning a series of expensive and high profile modifications to the downtown historic area that remain unfinished.¹⁷⁹ By the time Toluca's PAN mayorships ended in 2009, their administrations were accused of mishandling public funds and increasing public debt to finance unnecessary public works projects that were never

¹⁷⁶ The World Bank program was called FIFAPA, and a precondition was the creation of a fiscally autonomous water utility decentralized from the municipality. The loan was for approximately \$10m xp million (interview with Avila, 2008).

¹⁷⁷ This occurred through their Secretariat of Urban Development and Public Works as detailed in Chapter 2.

¹⁷⁸ Ramo 33 is a federal transfer to municipalities which can be used by the municipality for a large number of projects, according to a particular protocol, but ultimately at city hall's discretion. During the Nuñez 2000-2003 administration, the water utility received \$41,853,524 mxp million from Ramo 33, much higher than the \$6,843,152 mxp million received during the Enriquez 2003-2006 administration, and the \$7,826,086 received during the Sancez 2006-2009 administration. See *Agua y Saneamiento de Toluca* (2008a).

¹⁷⁹ "Frenadas las licitaciones para remodelar," *El Sol de Toluca*, April 19, 2008; Acta Num 120/2009 Sesión Ordinaria del Ayuntamiento de Toluca del 09 enero 2009.

completed.¹⁸⁰ Even though the same party remained in power for three administrations, these mayors tended to bring in their own inner circle for government positions, and not follow policies that were begun by prior administrations. These PAN administrations were characterized by lack of policy continuity between administrations, with large amounts of overhaul of personnel and changes in policies between administrations, as a well as a general sense of prioritizing other local public policies over water provision. Therefore, the PAN Mayors in Toluca did not push for a drastic overhaul of the city's water delivery system.

Toluca's business community did not provide the same amount of support for reforms that was evident in the PAN municipalities of Naucalpan, Leon, Celaya and Irapuato. While these other municipalities had industrial production sectors that were heavily reliant on water use, Toluca's industrial production needs proved to be less so. Toluca's municipal economy is the most productive of all nine municipal cases under study, in 2004, it grossed \$MXP 58.7 million, making up 66% of Toluca's municipal economy. However, 51% of the total industrial production (and 34% of the local economy) is dominated by the automobile assembly industry, a sector that is not highly reliant on water (Pacific Water Institute, 2008). Therefore, despite its high level of industrialization, Toluca's industrial sectors are not heavily reliant on water, with only 23% of the municipal economy coming from sectors that are not heavily reliant on water, and those sectors totaling \$MXP 20.4 million annually (2004 Economic Census). Industry has therefore been less inclined to support the cross-subsidy pricing structure and cost recovery practices inherent to municipal reforms in the water sector. Business support for reforms were medium/low—the business community did not take over leadership positions on the water utility's board of directors, nor did they pressure mayors for sustained reforms over multiple administrations. The limited reforms that occurred were promoted by mayoral initiatives that were not consolidated by the following administration.

The general manager that was selected by the board of directors was under the direct supervision of PAN mayors who were willing to let him manage the water utility as he saw fit, as long as the mayor received credit for hydraulic works constructed, and improvements in service provision did not come at the expense of the mayor's political capital or promises (interview with Morales, 2008). The same general manager, Mauricio Ramirez Rosaldo (2000-2006) lasted two administrations, and was capable enough a director to create an office of planning and hydraulic works, and begin a policy of regularly qualifying for and applying for federal level resources that the National Water Commission administered. During the 2000-2008 period, the water utility's general construction budget increased by 400% (Agua y Saneamiento de Toluca 2008a). These policies are important, because besides providing an increased budget, they represent a certain level of alignment with federal level policies and technical requirements that contribute to a water utility's record keeping practices and increase the water utility's ability to diagnose problem areas and strategize about solutions.

Despite Ramirez outlasting two mayors, there were many personnel changes for the three PAN administrations. As one water utility employee noted, "here in public office we say that we are born again every day. When I come to work, I have to check to see if there is someone else in my chair, if not...then I know I still have a job (anonymous respondent, 2008)." Because in Toluca the board of directors makes decisions about whether or not water utility employees may

¹⁸⁰ "Evaporó administración panista \$42 millones," *El Sol de Toluca*, January 27, 2009.

stay in their job during a mayor's three year administration, personnel continuity was not guaranteed when administrations changed. City council people, and the mayor, would at times want to bring in their own clique of people, or make good on campaign promises, distributing valuable positions in public service to friends and colleagues. Toluca's water utility insists that despite personnel changes, policies remained the same, which is true to the extent to which policies were a reflection of federal level funding requirements. Despite some continuity in policies, projects stalled with new administrative changes in Toluca's water utility because employees were worried about losing their jobs (anonymous respondent, 2008).

5.4.2. Municipal Policy Reform Outcome

The following section will demonstrate how the Toluca water utility was able to make some substantive reforms, but fell short of the extensive reforms experienced in Naucalpan and the water utilities within Guanajuato State. In terms of cost recovery pricing policies, Toluca's water prices increased and became more standardized due to the organizational efforts of the Mexico State Treasury Institute. However, increases are still determined by Toluca's city hall and participation in the working group does not guarantee systematic price updates, simply greater transparency and accountability in the pricing process. In the more politically costly policy areas of meter installation and suspension for non-payment, Toluca's water utility has been less successful. Finally, Toluca's water utility did not begin implementing greater efficiency measures to update their antiquated network infrastructure until 2006, and continue to lose a large amount of water through leaks, as well as provide intermittent service throughout the city. Vast service improvements take years to be completely realized, and Toluca's ability to overhaul the entire system in a short period of time has been limited.

5.4.2.1. Creating Cost Recovery (Fiscal) Policies

Unlike Naucalpan, who began to initiate cost recovery pricing policies in the late 1990s without state government support, Toluca's water utility did not initiate reforms in their pricing structures until 2002, when they began to benefit from the Mexico State Treasury Institute's coordination of pricing schedules among water utilities. As in most municipalities, before price standardization initiatives began in Toluca, prices were fixed directly by city hall without any consultation with technical experts, and without regard to the cost of supplying service (anonymous respondent, 2008). Again, it should be noted that municipalities are still able to fix the pricing structure that they see fit, participation in the working group is not mandatory, and city hall continues to propose whether tariffs are increased or not. However, as of 2002 Toluca's water utility has a systematic practice of creating a pricing methodology, and tariff proposals that can be justified vis-à-vis the cost of service, rather than campaign promises. Nevertheless, one water utility employee admits that among the more technical and operational factors that go into considering price increases, political considerations remain relevant: for example, how much can PAN constituents afford to pay around election times (anonymous respondent, 2008)? Mayor Sanchez (2006-2009) openly admitted that he feared increasing water prices more than citizens could afford to pay, especially if price increases were intended to recuperate the costs the city pays to the state government for their bulk water allotment.

The problem for Toluca is not the implementation of cost recovery pricing initiatives, but rather the failure to implement large scale rigorous fee collection practices. The lack of extensive modification of collection practices is evident with respect to several areas, all of which differ greatly from Naucalpan's experience. First, while Toluca's prices for metered consumption are in line with the state-wide norm, Toluca's water utility has been unsuccessful in installing meters widely—by 2008, only 7.5% of users in Toluca had meters installed, as compared with Naucalpan's rate of 65% (internal AYS figures, 2008; internal OAPAS figures, 2008). Toluca's water utility has been hesitant to pursue large scale meter installation because their consumer base rejects meters (as did Naucalpan's) and the water utility have been concerned about public backlash against this unpopular action, as well as installing meters in areas where installation would not be financially viable (interview with Guerrero Palma, 2008). Water utility employees also reason that because the majority of their consumer base is not industrial users, they have less of an incentive to install meters. Second, while some service suspensions for non-payment were begun in 2008, for many years the service suspension policies at Toluca's water utility were not systematic and exhaustive, despite the Mexico State Water Law's stipulation that water service could be restricted for non-payment. Toluca's water utility management did not perceive service suspensions to be politically feasible.¹⁸¹ As of 2008, the water utility has the legal authority to seize consumer's property if they do not pay, but lawyers contracted to exercise legal action against non-paying customers only began working in 2008, and have likely had to switch policies with the entrance of the new 2009 PRI administration in city hall.¹⁸² Third, while other "high reforming" water utilities have taken great strides to decrease the amount of backlogged consumer debt within the water utility, Toluca has been not pursued a strategy of extensive debt recuperation. In fact, as of 2009, 46% of the city's population owes the water utility service fees, an accumulation of as much as \$MXP 600 million over a ten year period.¹⁸³ Fourth, due to a network infrastructure map that is outdated, as many as 20% of users have consumption ratings that are miscategorized, e.g, they are commercial properties but paying residential prices.¹⁸⁴ Fifth, unlike Naucalpan, Leon, Irapuato and Celaya, Toluca's water utility has not created payment incentive programs, such as cars and appliance raffles, or other means of promoting timely payment. And finally, it should be noted that as the capital city, Toluca's water utility has to absorb the costs of delivering service to public entities that are constitutionally guaranteed free water service. The water utility has been unable to install meters in these buildings, or solicit payment. The following section describes the operational practices in place in Toluca since the PAN administrations began in 2000.

5.4.2.2. Creating Limited Reforms in Operational and Institutional Practices

Like other municipalities located in the Valle of Mexico, Toluca's water supply is quickly becoming exhausted. Toluca receives 30% of their supply from the state government (Cutzamala Dam), and 70% is derived from underground aquifers (Agua y Saneamiento de Toluca 2008b). For years Toluca's water utility has faced numerous infrastructure problems:

¹⁸¹ "Eximen a colonos de multas por agua—Otorgan en Toluca descuentos de hasta el 100 por ciento en multas y recargos a clientes morosos," *Reforma*, July 9, 2001.

¹⁸² "Escuadrón jurídico de la capital mexicana, a cobrar el agua," *Milenio*, November 18, 2008; Interview with Carlos German, Toluca, Mexico, June 10, 2008.

¹⁸³ "Debe agua 46 por ciento de los toluqueños," *Milenio*, September 7, 2009.

¹⁸⁴ "Evaden pagar el agua 20 por ciento de los toluqueños," *Milenio*, November 18, 2008.

outdated network infrastructure maps, antiquated network infrastructure dating back over forty years, and high amounts of lost water through pipes. Furthermore, the water utility has to share the city's underground water sources—which are exploited beyond yearly replenishments—with several actors throughout the city from whom they receive no financial compensation. Public institutions (schools, hospitals, and all governmental offices, of which there are many in the capital city) are provided water from the water utility and do not pay for service—as many as 1,100 buildings.¹⁸⁵ Furthermore, some industrial consumers have their own water extraction permits from the National Water Commission, which accounts for 30% of total water sources in the city.¹⁸⁶ Finally, over 500 “local committees” extract their own water to supply their small communities, competing with the water utility for limited aquifer resources.¹⁸⁷ This panorama makes a complete overhaul of the city's piped infrastructure very difficult, necessitating a long-term vision and planning efforts that exceeded what Toluca's PAN Mayoral administrations were willing to do.

While Toluca's water utility has found it difficult to increase their service coverage (which remains at 88%) and service continuity (which remains at 40%) to keep up with the vast amount of population growth in the last decade, alignments with federal programs have created some modernization efforts that begun to be implemented in 2005 (interview with Moreno, 2008). For example, the water utility has begun planning a digitalization effort (*sectorización*) to have better understanding of where leaks occur and how pressure can be better regularized throughout the network (anonymous respondent, 2008). Under General Manager Ramirez's administration (2000-2006), several important steps were taken: tracking performance indicators over time, creating for the first time programs to increase physical efficiencies and seeking out federal level resources for hydraulic projects rather than going through the state water commission, which the municipality claimed was hostile to their municipal government because they belong to different political parties (interview with Garcia, 2008; interview with Moreno, 2008). Despite some advances, Toluca's ability to update the majority of the network remains limited. The network infrastructure is as old as sixty years in some areas, and approximately 75% of it is in dire conditions, losing up to 45% of conducted water daily.¹⁸⁸ As of this 2011 writing, Toluca's water utility had no sanitation treatment plant plans under construction, and is therefore not treating any of the wastewater collected.

Such conditions have made concerns over water service a politically potent issue, exacerbated by periodic shut downs of the Cutzamala Dam for maintenance, which often results in public outrage and at times protests from citizens.¹⁸⁹ In response to these concerns, politicians in Toluca have campaigned on guaranteeing water for the future,¹⁹⁰ and take any opportunity available to appear to be addressing the issue. All three mayors, particularly Mayor Sanchez (2006-2009), participated in multiple photo opportunities advertising that hydraulic works were

¹⁸⁵ “No pagan agua potable mil 100 edificio públicos,” *Milenio*, November 25, 2008.

¹⁸⁶ “Cinco industrias consumen 30% del agua potable de Toluca,” *Milenio*, May 4, 2007.

¹⁸⁷ “Preparan proyecto para regular a comités locales,” *El Universal*, September 24, 2007.

¹⁸⁸ “Podría colapsar red hidráulica,” *Milenio*, March 30, 2009; “Acusan baja calidad en tuberías-Comunidad,” *Reforma*, March 19, 2006; “Utilizan tubería de baja calidad,” *Reforma*, March 19, 2006.

¹⁸⁹ “Protestan en marcha oficial por falta de agua en Capultitlán,” *Milenio*, March 22, 2009; “Apoyarán a 13 colonias más afectadas por falta de agua,” *Milenio*, May 29, 2009; “Sin agua, un millón 200 mil colonos,” *El Universal*, January 13, 2000.

¹⁹⁰ “Reservas de agua para 20 años-Juan Rodolfo,” *El Sol de Toluca*, March 23, 2009.

being constructed, and that their administration was responsible, even when the works were constructed with federal funds that went directly from the National Water Commission to the water utility.¹⁹¹ Mayor Sanchez's administration worked closely with the water utility's public relations department to make sure that his name was associated with the construction of hydraulic infrastructure, and that the local news media made favorable reports with respect to himself and the general manager (interview with Chavez Jacobo, 2008). Despite these efforts, governance in the sector by PAN administrations in Toluca has been insufficient to guarantee water security for the next twenty years, despite Mayor Sanchez's campaign promises in 2006.¹⁹²

Some water utility employees complain that water service in Toluca remains overly politicized. They say that the PRI used to promise free or cheap water during their campaigns, and while the PAN has not done that, Sanchez's campaign promise of "water for the next twenty years" came close. Other examples include providing water for local committees who are not under the jurisdiction of the water utility, but because they are potential voters for the mayor, the water utility must use their resources to help them when called to do so by city hall (interview with Escamilla, 2008). As previously mentioned, the water utility takes into account their constituents' ability to pay the new prices as one of several criteria under review during price negotiations with city hall. Finally, Toluca's water utility under PAN leadership has had a contentious relationship with the PRI state water commission: the water utility claims that the state water commission purposefully shuts down their water supply around election times, and fails to grant them funding from federal grants they administer because they are from a different political party (interview with Escamilla, 2008; anonymous respondent, 2008).

In terms of institutional changes, Toluca's score of 3.0 on the dependent variable index (see Appendix 5.1), reflects a strong amount of professionalization that has occurred through training programs, a moderate amount of human resource re-organization (there are a fair amount of redundant employees), and very limited efforts to reach out to consumers through the creation of a website, implement new customer service centers, telephone hotlines or undertake consumer satisfaction surveys.

5.4.3. Conclusion

The Toluca case is a paradoxical one: in some respects the water utility appears to have made important advances, and they are certainly eligible for federal funding because of their attention to technical requirements such as information tracking, some physical efficiency improvements and investments in infrastructure--policies that were not in place in the 1980s and 1990s. However, as the capital city of the most populous state in Mexico, Toluca's reform initiatives have lagged behind other municipalities in the state,¹⁹³ and the quality of service being provided is not growing at the same rate as their expanding population. The primary reason for this disconnect is two-fold: the mayor is institutionally mandated to intervene in operational

¹⁹¹ "Supervisó el alcalde de Toluca el entubamiento del canal La Vega," *El Sol de Toluca*, May 15, 2008; "Once obras hidráulicas para que no falte agua en 20 años: Alcalde," *El Sol de Toluca*, October 17, 2008; "Entregó el alcalde de Toluca obras hidráulicas y de infraestructura escolar," *El Sol de Toluca*, October 9, 2007; "Mas de 640 mil pesos para obras de drenaje y agua," *El Sol de Toluca*, May 22, 2008.

¹⁹² "Quedaron inconclusos los trabajos para garantizar el abasto de agua en Toluca," *Milenio*, July 10, 2009.

¹⁹³ Such as Naucalpan, Ecatepec, and Tlanepantla (interview with Lopez, 2008).

practices—and Toluca’s mayors have not been inclined to expend large amounts of political capital pushing reform. I argue that this is due to the lack of business support for these reforms—particularly a strong water intensive industrial group that could help subsidize the reform process and sustain pressure for reforms over multiple municipal administrations. Evidently Toluca’s mayors believed that participating in the rhetoric of reform while not pushing exhaustively for reform would be most politically beneficial. The reason for this lack of political opportunity is multi-faceted: first, Toluca’s industrial base is not water intensive, and many industrial users already have their own direct access to water resources and are not customers, making cross-subsidies less financially feasible. Second, income studies undertaken by the water utility indicated a resistance to metering and elevated price increases—making reforms politically costly for Toluca mayors who did not have the same level of residential constituents for whom to “sell” reform benefits. Third, the age and condition of the city’s hydraulic pipes meant necessary, but invisible, public works improvements, which were not as attractive for some mayors as putting their weight behind more highly visible public works in other policy areas other than water service. Finally, because Toluca is the state capital, there are many public buildings in the city, all of whom are constitutionally exempt from paying for water service. As many 1,100 public buildings are completely subsidized by the water utility, and few of them employ consumption meters, which makes extensive reforms of public buildings unlikely.¹⁹⁴

Aside from a given mayor’s aptitude for governing a municipality, because Mexican municipal administrations are so short, policies are difficult to undertake if there is not major policy continuity over multiple administrations. While three PAN administrations governed Toluca for three electoral cycles, there was no strong vision and leadership as to how drastic improvements in service could benefit the politician or the party—I argue because of the lack of business support, and because constituents were lower income consumers. Therefore smaller and less significant improvements occurred at the operational level, rather than a major overhaul like what was seen in Naucalpan, or in the cities in Guanajuato described in Chapter 4. Under the right circumstances, the state government can provide a source of pressure for reforms, but this was not the case for Toluca for several reasons: the historic debt Toluca has with the state water commission; party competition between the state government (PRI) and the municipality (PAN); and the competition between state level institutions to “control” the hydraulic issue in a state that suffers from major water scarcity, as discussed in Chapter 3. The only form of passive pressure for reform from the state government was in the area of cost recovery pricing structures, from which Toluca benefited. While the last PAN mayor guaranteed Toluca’s citizens a water supply for the next twenty years, he and his predecessors were unable to do more than keep the water utility operating and providing service, but not undertake and complete the large scale overhaul that is required.

5.5. NEZAHUALCOYOTL: LOW REFORM CASE

Nezahualcoyotl (Neza) lies on the peri-urban outskirts of Mexico City and is the second most populous metropolitan center in Mexico State. Like both Naucalpan and Toluca, Neza experienced a historic transition between political parties only a decade ago, but unlike these two other cases, the historic 1997 win in the Neza municipality was ushered in by the leftist PRD (Partido Revolucionario Democrata). The PRD went on to govern the Neza municipality from

¹⁹⁴ “No pagan agua potable mil 100 edificio públicos,” *Milenio*, November 25, 2008.

1997- 2009, for a total of four consecutive municipal administrations. As it had for the PAN, the PRD's constituent support shaped its governing platform and the parameters within which PRD policies were crafted. The comparatively smaller amount of industrial users and middle and higher income users limited the extent to which reforms would have been financially viable through the application of cross-subsidies. Furthermore, the bias in the customer base towards low income users meant that a political strategy of undertaking extensive, and expensive, high profile reforms from which to draw political benefits through credit claiming was not available for the PRD in Neza (as it had been in Naucalpan). Because the PRD's primary constituents were low income citizens, a group that would be most hurt by the policies associated with reforming water provision (e.g., price increases, service suspension for non-payments, eliminating clandestine connections), maintaining the status quo of discretionary service provision was politically safer, and personally more beneficial, than taking on more extensive reforms. Neza's relationship with the state government further exacerbated the possibility for reforms, because their accrual of an enormous historic debt with the Mexico State Water Commission, and the ongoing pressure by the state for repayment, precluded any possibility of generated income going towards anything other than debt repayment.

5.5.1. Mayoral-Business Coalition Never Created

Neza's highly dense, urban population is mostly comprised of lower income groups, a limited number of both extreme impoverished sectors and educated professionals, and limited industry. Neza's water and sanitation network is as old as the city; both were established in 1963 to accommodate a much smaller population than the current urban mass of over 1.5 million. Neza's water utility was administered directly by the municipality until 1995, when a water utility further decentralized from the municipality formed (Organismo Descentralizado de Agua Potable, Alcantarillado y Saneamiento, ODAPAS), as had occurred in other municipalities in Mexico State around the same time. Like the other two water utilities under study in this chapter, Neza's water utility's board of directors bylaws is governed by the Mexico State Water Law, consisting of one president selected by the mayor, a city hall representative, a representative of the state water commission and three civic representatives. In Neza, the mayor typically appoints his/herself as president of the board of directors and personally selects the subsequent composition of the board. The board is re-assigned with each municipal administration, creating an institutional mechanism that ensures administrative discontinuity. As if three year municipal administrations were not a sufficiently brief periods in which to enact policy, Neza's municipal administrations have been particularly stagnated since democratizing--even though the last four administrations have been PRD, within this 10 year time period there have been four elected mayors and three interim mayors.¹⁹⁵

Therefore, the mayor directly controls the board of directors and single-handedly determines whether major policies will be enacted within the city's service provision process. The four PRD mayors that have governed Neza from 1997 to 2009 (Valentin Gonzalez Bautista; Hector Bautista Lopez; Venancio Luis Sanchez and Victor Manuel Bautista Lopez) have been responsive to their major constituents. The PRD is a relatively young political party, with a social democratic platform, and a stronghold in the nation's capital. The PRD is known for support among vulnerable populations as they have implemented various social programs to

¹⁹⁵ www.nezahualcoyotl.gob.mx.

appeal to this main constituent group. Within Mexico State the PRD has created strongholds in poor urban municipalities, which has differentiated them from PRI mayors throughout the state, who have courted the poor rural vote and have tended to be elected in more rural areas in the 2000s (Center for Strategic and International Studies 2006). Neza's mayors have instituted a number of subsidies for the majority of services provided by the municipality, including water services. The PRD's mayoral administrations in Neza have been hostile towards reforms because the PRD's major constituents, the urban poor, would most be disproportionately hurt by cost recovery policies. Because mayors and the board were not inclined towards standardizing collection practices and generating more revenues, they did not have either the technical requirements or the financial means to solicit federal monies, as had Naucalpan and Toluca, for infrastructure development. This has led to the "vicious cycle" where low quality services begets further justification for not charging for water service, which further diminishes the possibility of improving service quality.

The business community in Neza is not a strong presence. Industrial production in Neza accounts for 31% of the municipal economy, but only grosses approximately \$MXP 3.3 million annually. The aggregate production of water intensive industries in Neza is 20%, but this amounts to \$MXP 2 million annually (INEGI Economic Census Data, 2004). Therefore, Neza is rated as having low business support for reforms, which, coupled with the lack of interest on behalf of PRD mayors to initiate reforms, has led to a non-existent mayoral-business coalition for reform.

The mayors have directly appointed the general managers within the water utility, and changed them around when convenient. Of the last four appointed water utility directors in Neza's water utility, half have been replaced mid-season. While some have been engineers (Juan Herrera Moro (1997-2000), and Juan Martin (2003-3006), the rest have been high school graduates with no prior experience in water service delivery. Neza's general managers have all been PRD appointments, and have represented the party policy platform with respect to not undertaking extensive reforms, but rather "putting out fires," when they occur.

It should be noted that Neza's relationship with the Mexico State government has been particularly contentious, because they have one of the highest recorded debts with the state water commission, and unlike the other debtor municipalities, have refused to attempt to repay any of the debt. According to the Mexico State Water Commission, Neza's debta has ballooned to \$2,300 million mxp by 2008, which Neza considers unpayable.¹⁹⁶ Further complicating this scenario is that Neza relies on the state water commission's bulk water allotments for 80% of its supply, leading to a number of problems outlined in the following section. The water utility is so opposed to paying for their share of water supply from the state government that they insist on their financial records being kept confidential within the water utility, lest the state notice financial surpluses, however small, and demand partial repayment (author observation, 2008).

In this context, no reform coalition has formed: the municipality is opposed to incurring political costs of reforms, water utility directors (mostly unprepared and inexperienced) have

¹⁹⁶ "Negocia Neza deuda de agua por 36 mdp," *El Universal*, September 7, 2003; "Admite Neza que no puede pagar," *El Universal*, March 29, 2005; "Neza dejará sin agua a edificios públicos," *El Universal*, June 11, 2008.

been chosen in order to maintain the status quo (low cost, poor service), and the state government has provided minimal support for further reform.

5.5.2. No Municipal Policy Reform

5.5.2.1. Rejecting Cost Recovery Pricing Policies

Although Neza's water utility itself has not initiated a price restructuring effort, it has been affected by a state-wide price restructuring initiative that began in 2002. Neza's water prices are grouped within one of four groups, which also include Naucalpan and Toluca, based on their urban concentration and location within the Mexico Valley (interview with Macay, 2008). The price restructuring efforts have made some minor improvements: increasing Neza's prices from antiquated, ad-hoc schedules to a more uniform and publicly available schedule. However, price restructuring for Neza has had little practical importance for two reasons. First, while the working group led by the Mexico State Treasury Institute has created differentiated pricing blocks for the pricing category to which Neza belongs, these differentiated consumption blocks do not in practice affect the municipality which has virtually no metered consumption and where the majority of consumers are on a fixed annual block rate. Second, PRD municipalities have banded together to resist major price increases, which means that even though they may belong to the same pricing categories as their PAN counterparts, Neza can correct any politically harmful price increases by not requiring their constituents to pay for water service, as demonstrated in the following section.

Resistance to implementing cost recovery pricing policies does not lie so much in Neza's price restructuring policies as in the water utility's collection practices. Neza's water utility does not consider cut off of service for non-payment a politically viable option (interview with Revilla, 2008). The water utility argues that consumers are so reluctant to pay for the poor quality service they receive that the billing office has stopped issuing water bills. If consumers would like to pay for their service, they must come to the water utility's headquarters with official documentation and a prior year's water bill. The billing office uses the consumer's prior bill to generate a new bill, which the consumer can pay "if they like" (interview with Portillo, 2008). Consumers may only pay in cash and in person, in one of the two payment centers in the city, and they must obtain a power of attorney in order to have someone else in the family pay for them. Neza's water utility does not merely fail to enforce bill payment, they make bill payment very difficult.

Neza's collection policies are purposefully casual: the water utility does not have to waste time or manpower issuing bills, tracking revenues, or demanding payment, they simply accept whatever revenues come their way. Likewise, consumers are under contractual obligation to pay for service but non-payment is not punished, so consumers have little incentive to pay. Their "hands off" collection policies are further aided by the fact that there is no measured consumption in Neza, all water prices are block amounts based on consumer category (low income, middle income, commercial, etc), making it easier for staff to process payment. However, no installed meters means that leaks are not monitored, consumption is not regulated and both the physical infrastructure and water reserves diminish further.

Because Neza's water utility is financed primarily through consumer fees, some revenues must be collected in order to pay for a minimum of costs (worker salaries, electricity bills, etc). In order to generate some revenues, the municipality issues bi-monthly "debt forgiveness" programs which culminate in the largest subsidy (50% or more) around the Christmas holidays. Additionally, all seniors receive 50% discounts, and consumers who pay in the first two months of the year receives further discounts. Because of the many subsidies administered directly by the municipality, the water utility admits that few consumers would choose to pay their bill during non-discounted months (interview with Portillo, 2008). The majority of Neza's paying customers are overwhelmingly elderly consumers who pay approximately 1/3 of their bill. Small and medium sized businesses and higher income users are also not made to pay for service; the water utility admits that they do not regularly track consumption, accounts or ability to pay (interview with Portillo, 2008). Instead, the municipality chooses to maintain the status quo of highly inadequate service and subsidized billing policies to all of its consumers.

5.5.2.2.Rejecting Operational and Institutional Reforms

Although coverage is high for water and sanitation service (99%), service continuity, water availability and water quality is extremely low. The two commonly cited greatest problems in the water utility is low availability of potable water and the ongoing flooding that occurs through the rainy season given the antiquated piped network infrastructure and lack of suitable rainwater drainage systems. In terms of sanitation, Neza's water utility does not treat over 99% of its sanitation, instead dumps it into centrally located water reservoirs throughout the city.

The antiquated network infrastructure is to blame for a large portion of poor service, which had not received an overhaul since its inception.¹⁹⁷ Over half of the water that enters the network is lost through transportation, and because ODAPAS measures neither the supply nor the output, they are not aware of how much is lost, or where in the network it is disappearing (through leaks, clandestine connections, etc). Furthermore, the piped network is so old (over 45 years) toxic materials from the pipes enter the water supply before being delivered to consumers. Neza's water quality labs use outdated methods and do not regularly test individual consumption standards, choosing to blame consumer's storage containers when water becomes contaminated, or the Mexico State Water Commission's water transportation system (author observation, 2008).

While the water utility's antiquated network is responsible for much of the substandard service, the water utility has failed to implement basic measures that would provide some relief to the network system. For example, the water utility does not collect its potable water in elevated storage containers before feeding it into the network, which is a common method for increasing water pressure before dispersal. The result is consumers who live near water feeders receive all the pressure and consumers who live further away receive as little as a few drips. Between the large amount of leaks and the non-pressurized practices, many consumers receive very little water despite being "officially" covered by the water utility. Additionally, because ODAPAS does not have bulk stored water, they are unable to temporarily shut down service for

¹⁹⁷ "Neza: 33 años de olvido y corrupción," *La Jornada*, January 13, 1997.

repairs without inciting further backlash against the water utility.¹⁹⁸ Repairs, when they do occur, are localized and do not attempt to implement more integral solutions.

Neza's piped network infrastructure has been described as a "cobweb" of interconnected pipes, created without design or integral planning, whose health is further undermined by the lack of a network map. Because the entirety of the piped network remains an enigma to the water utility's operations directors and because it is not automated, they are unable to create a service rationing schedule (*tandeo*) that would periodically provide service in hourly increments to different neighborhoods—a common practice throughout Mexico. The water utility has had to resort to manual water provision: water delivery trucks implement a delivery schedule throughout the week, and other trucks respond to some of the thousands of daily complaints of water shortage (interview with Perez, 2008). Inattention to the piped network has forced Neza to rely more and more on informal methods of service provision outside of the network grid.

Such poor service delivery has not been without its political costs to Neza's mayors. Periodically, some or all, of the municipality has its service shut down due to any of the following reasons: ruptures within the network, network repairs by the state water commission, or failure by the water utility to pay their electricity bill.¹⁹⁹ During the rainy season, the many high flood zones are inundated with flooding, or worse-- sewage that threatens to flood the city. Because Neza's sewage disposal system runs on electricity but have no back up generators, and because the sewage network grid is so under serviced, power shortages and torrential rains makes sewage flooding a real threat in Neza.²⁰⁰ These are socially disruptive and politically unpopular, and can induce periodic public backlash. Nevertheless, because civic expectations for adequate services is so low, and because the municipality and water utility's capacity to respond to problems is so limited, a pattern of "putting out fires," has emerged that resolves immediate operational problems with another band-aid, alleviating civic demands in a targeted, and short-run fashion.

Administrative directors say that morale is low because workers are not paid well, and operations workers are made to work under hazardous conditions because the water utility cannot afford sufficient masks, body suits for drainage cleaning or industrial level equipment for trench digging (interview with Bernardino Rojas, 2008). The customer attention director laments that her staff is ill-informed because there is no internal communication within the water utility, often they answer phones without any information to rely to consumers; receptionists attempt to placate callers even though they know that there is not sufficient manpower or vehicles to attend

¹⁹⁸ "Sin agua, 200 mil habitantes de Neza, por ruptura en la red," *La Jornada*, March 5, 2008; "Hoy se reanuda el suministro de agua en Nezahualcóyotl," *La Jornada*, July 12, 2007; "Colonos de Nezahualcóyotl protestan por falta de agua," *La Jornada*, March 22, 2010.

¹⁹⁹ "Sin agua, 200 mil habitantes de Neza, por ruptura en la red," *La Jornada*, March 5, 2008; "Hoy se reanuda el suministro de agua en Nezahualcóyotl," *La Jornada*, July 12, 2007; "Colonos de Neza dicen tener 15 días sin agua," *El Universal*, March 17, 2006; "Colonos de Nezahualcóyotl protestan por falta de agua," *La Jornada*, March 22, 2010; "Quedarán sin agua en Neza por deber la luz," *La Jornada*, June 15, 1998; "Cortarán agua 4 días a 38 colonias de Neza," *Reforma*, August 15, 1997.

²⁰⁰ "Inundan aguas negras varias viviendas de Neza," *El Universal*, May 16, 2002; Muerte y enfermedades por aguas negras," *El Universal*, July 2003; "Persiste riesgo en Neza," *Reforma*, October 14, 2005; "Lluvia dejó 100 casas inundadas en Neza," *El Universal*, April 24, 2006; "Invaden lodazales calles y viviendas en Veracruz," *La Jornada*, July 1, 2008; "Inservible el cárcamo Villada en Neza," *El Universal*, March 22, 2010.

to the majority of service complaints (interview with Perez, 2008). The billing office is also unprepared to handle anything more than basic computing and their actions are not monitored, nor are incoming revenues carefully tracked.

The result of years of substandard service is low expectations regarding service quality for both the water utility and consumers. Neza's water utility argues that consumers do not need more than 2-3 hours of service a day; their modest development plans involve increasing service to several neighborhoods by automating a portion of the network to provide service for three hours a day (interview with Barcenas, 2008). The water utility reasons that the low amounts of water consumers receive (approx 80L/day) make them more conscientious and conservation oriented because they learn to make due with less water. Consumers, for their part, make 2000-3000 complaints daily, and many customers have stopped attempting to reach the water utility because they do not feel that their complaints result in improved service (interview with Perez, 2008). Poor service quality has become the status quo in Neza.

5.5.3. Conclusion

Reforming Neza's water utility provision process has been politically unattractive for PRD mayors because reforms entail increasing water prices, and regularizing collection practices, which would disproportionately hurt major PRD constituents, the urban poor, particularly in the short-term. PRD mayors had little to gain from alienating their major constituent base by initiating reforms, and a number of influential actors within the service provision process had much to gain by maintaining discretionary service practices. First, the mayor and water utility director benefit from the business that repairing refurbished parts (e.g., electricity generators) brings to their colleagues and themselves (interview with Lozano Bedolla, 2008). Therefore, the mayor and his colleagues are not interested in purchasing necessary new generators, vehicles and other hardware because they profit from the side-business of repairing continually deficient hardware. Second, because Neza's water utility has no control over their water supply and because workers are underpaid, operations workers may sell water access without any fear of recrimination. Third, bill collectors may also pocket some revenues when they collect consumer payment because the process is not automated or regulated. Finally, the water utility is so tied to the municipality, both of which are rumored to be highly corrupt, that the water revenues that enter ODAPAS may be used for other purposes, or simply pocketed. For these reasons, the institutional level of reforms in Neza's water utility was extremely low, scoring a 1 out of a possible 5 points on the dependent variable index (see Appendix 5.1).

No mayoral-business reform coalition has formed in Neza, instead, water utility directors colludes with the municipality in order to extract rents from the water utility. Rents derived from discretionary practices set a dangerous precedent; future "would be reformers" will find it difficult to eliminate corruption without dismissing all workers, which is unlikely because there is no digitalized map of operations and therefore experienced manpower is essential. The state water commission, a potential ally, is embroiled in a historic feud with Neza, which Neza further antagonizes by refusing to pay for the water they receive. The status quo of delinquent service and no cost recovery policies has prevailed in Neza. Local politicians reap a dual benefit: they are able to extract rents from the water utility while simultaneously appealing to their constituent base by not requiring payment for water services. All would be reformers are "captured"--

instead of a reform coalition there is a “rents coalition.” The water utility maintains the status quo and receives rents; the consumer base tolerates status quo and receives rents of subsidized or free water.

5.6. CHAPTER CONCLUSION

The three reform outcomes in Mexico State vary considerably—from high in Naucalpan, medium in Toluca and low in Nezahualcoyotl. I argue that the high amount of variation in the mayoral-business coalition across the three cases led to variant outcomes in the three municipalities under study in Mexico State. The level of business support for reforms varied considerably across the three cases.

Figure 5.1. Measures for Water Intensive Industry in Mexico State

| Municipality | Aggregate Production of Water-Intensive Industries as a Percentage of Total Municipal Production (Concentration Measure) | Aggregate Production of Water-Intensive Industries (\$1,000,000) (Critical Mass Measure) | Critical Concentration of Water Dependent Industry? |
|----------------|--|--|---|
| Naucalpan | 46% | 32.2 | Yes |
| Toluca | 23% | 20.4 | No |
| Nezahualcoyotl | 20% | 2.0 | No |

Source: 2004 Economic Census, INEGI Mexico; Pacific Institute's Water Program

In Naucalpan, industries such as chemicals, paper and metallics production dominated the industrial sector, leading to a high concentration of water intensive industry in the city. Although the city of Toluca was highly industrialized, 51% of the municipal economy was dominated by the automobile assembly industry, a sector not highly reliant on water. Finally, in Nezahualcoyotl, the industrial production in the city was relatively small (in GDP), and not coded as a water intensive industry.

| | Mayoral Support | | | | |
|------------------|-----------------|-----------|-------------|-------------|----------------|
| | | Low | Medium Low | Medium High | High |
| Business Support | Low | Neza (MX) | | | |
| | Medium Low | | Toluca (MX) | | |
| | Medium High | | | | Naucalpan (MX) |
| | High | | | | |
| | | | | | |

Business support for reforms were important in Naucalpan, and were scored medium/high in Table 5.1, but they did not take on the participatory role business had in Leon in the state of Guanajuato. In Toluca, business support is coded medium/low, because there was not a water intensive industry to subsidize an extensive reform process, but there were some acceptance of a limited amount of cost recovery measures. In Neza, business support was low.

Similarly, mayoral support in Naucalpan was high as reforms were led by a series of very active and participatory PAN mayors. Mayor Duran was a powerful and ambitious figure within the PAN party who was able to dictate the content of the reform process beginning in 1997 and continued controlling it throughout the subsequent PAN mayoral administrations, right through his re-election to mayoral office in 2006. Many of the same bureaucrats and political appointments were “recycled” during the PAN years in Naucalpan (1997-2009). In Toluca, mayoral support was medium low given a few reforms in the sector initiated by PAN mayors, but not deepened given the constituent base of the PAN mayors in Toluca, that had a large low and middle income group that rejected extensive cost recovery measures. In contrast, Toluca’s PAN mayors were unable to initiate extensive reforms in the water sector, and smaller initiatives that were begun in one administration were not systematically followed through by subsequent administrations. While Toluca’s PAN mayors knew that modernizing the sector was important, they were unable to coordinate across multiple administrations and reap political benefits of a successful reform process. While multiple successive switches between political parties can make municipal policy making over time difficult, policymaking can be challenging even when the same party remains in power for multiple administrations. Local politicians compete with each other within their own party for positions within their party leadership, and the party nomination for elected positions throughout the state’s local legislature, mayorships and a myriad of city hall appointments. Therefore, belonging to the same party does not guarantee the formation of a reform coalition, as the Toluca case demonstrates. The PRD mayors in Neza did not attempt reforms. A series of PRD mayors, responsive to the urban poor, benefited from discretionary service provision

Finally, it should be noted that the Mexico State government played a precarious role in the reform process of the municipal water utilities within the state. In terms of the legal framework provided by the state government, the Mexico State Water Law supported cost recovery pricing, but dictated the terms of the institutional makeup of the board of directors. In doing so, they tied the management of the water utility to mayoral control, limiting the ability of other societal actors to check the mayor or participate extensively in the reform process. In terms of fiscal policies, the Mexico State's Treasury Institute has helped promote a working group of price standardization policies composed of municipal water utilities. The group has on the one hand been instrumental in making some adjustments to the pricing policies, and making them systematically updated and publicly available. On the other hand, the pricing policy outcomes remains dictated by municipal water utilities, which remain beholden to mayors, and the extent to which they want to push for price increases, which may be politically unpopular. Finally, the state government (through the state water commission) has not been able to support municipal water utilities in technical programs, professionalization or other operational means of support, nor does it track performance indicators or provide prizes for performance. This is due largely to the ongoing feud between water utilities and the state water commission over debts accrued for the sale of bulk blocks of water from the Cutzamala Dam. Therefore, municipalities inclined towards reform were able to take advantage of the pricing working group organized at the state level, and benefit from a legal framework that protected their interests in market-based reforms—which is more than occurred in the Veracruz state case. Otherwise, the state government has not been able to successfully promote a wide scale system of support for its municipal water utilities, as Guanajauto was able to do.

Figure 5.2. Findings for Municipal Cases in Mexico State

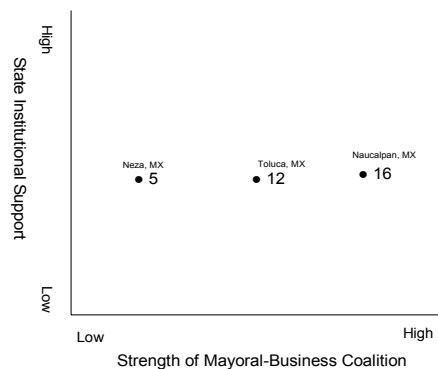


Figure 5.2 illustrates how variation in the strength of the mayoral-business coalition, coupled with a medium amount of state level support, led to the municipal policy outcome. The outcome is conceptualized along three dimensions (fiscal, operational and institutional), and the precise scores for each indicator is presented in the dependent variable index located in Appendix 5.1. The nominal scores for the three cases vary considerably in Mexico State, across a range of high, medium and low, due primarily to the variation in mayoral-business coalition strength.

Appendix 5.1. Municipal Policy Reform Index for Three Cases in Mexico State

| Categories and Subtotals | Indicators | MUNICIPAL CASES AND SCORES | | |
|--------------------------|---|----------------------------|--------|---------------|
| | | NAUCALPAN | TOLUCA | NEZAUALCOYOTL |
| FISCAL POLICIES | Cost Recovery Measures 1: Pricing Policies/Structures | | | |
| | 1. Is (new) pricing structure consumption based, with built in cross-subsidies? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 1.0 |
| | 2. Are non-water consumption service concepts (e.g. new meter installations, new tube placements, service installation) standardized across concepts? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 1.0 |
| | 3. Are new prices indexed (or otherwise regularly updated), guaranteeing periodic, incremental increases? 0.0 =no 0.5 =indexing to minimum wage or similar category 1.0 =indexing to cost calculations or similar category | 0.5 | 0.5 | 0.5 |
| | 4. Are prices published annually or otherwise made publicly available? 0.0 =not periodically 0.5 = periodically but not for all price change 1.0 =fixed periodic publication for all price changes | 1.0 | 1.0 | 1.0 |
| | 5. Are pricing decisions based on cost of service indicators or other cost based methodology? 0.0 =no 0.5 =somewhat 1.0 =yes | 0.5 | 0.5 | 0.0 |

| | | | | | |
|------------------------|--|------------|------------|------------|--|
| | Cost Recovery Measures 2: Collection Practices | | | | |
| | 6. % of meter installation 0.0=for lowest 3 0.5=middle 3 1.0= highest 3 | 1.0 | 0.0 | 0.5 | |
| | 7. Is service routinely (partially) suspended for non-payment? 0.0= no 0.5= some 1.0= formal policy | 1.0 | 1.0 | 0.0 | |
| | 8. Are clandestine connections routinely monitored and eliminated? 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 1.0 | 0.0 | |
| | 9. Are new, "easier to use" payment options created to promote bill payment? (e.g. electronic modes of payment, raffling household items, more payment centers and customer relations windows) 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 0.5 | 0.0 | |
| | 10. Are civic outreach programs created to promote a "culture of payment?" (e.g. pricing comparatives, advertising benefits of payment for service development) 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 0.0 | 0.0 | |
| FISCAL SUBTOTAL | | 9.0 | 6.5 | 4.0 | |

| | | | | |
|-----------------------------|---|------------|------------|------------|
| OPERATIONAL POLICIES | 11. Are "leaks elimination campaigns" undertaken in order to increase water supply and regularize pressure throughout the network? 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 0.0 |
| | 12. Is pressure regularized throughout the network by creating elevated storage tanks or applying "breakers" in the entry points throughout the grid? 0.5 =some 1.0 =yes | 1.0 | 1.0 | 0.0 |
| | 13. Does the network become more automated, or "digitalized" (more measurement of how much, and where, and where, water enters and exits the grid) 0.0 =no 0.5 =partially 1.0 =yes | 0.5 | 0.0 | 0.0 |
| | 14. Have water quality testing and procedures been routinely implemented? (as measured by increase in potable water treatment plants, adhering to testing methodology (anything above chlorination), tracking water quality indicators) 0.0 =no 0.5 =some 1.0 =yes | 0.5 | 0.5 | 0.0 |
| | 15. Are sewerage treatment plant facilities constructed and/or in operation? 0.0=no, or treatment <10% 0.5= under construction and will be in construction with treatment > 90% 1.0= yes, in operation with treatment >90% | 0.5 | 0.0 | 0.0 |
| OPERATIONAL SUBTOTAL | | 3.5 | 2.5 | 0.0 |

| | | | | | | | |
|-------------------------------|--|-----|------------|------------|------------|--|--|
| INSTITUTIONAL POLICIES | | | | | | | |
| | 16. Level of professionalization of work staff: is workforce made to undergo further training? Are employees well suited for their position given their training, education and experience? =no 0.5 =somewhat 1.0 =yes | 0.0 | 1.0 | 0.5 | 0.0 | | |
| | 17. Institutional organization regarding human resources: are new protocols for work staff and job responsibility created and clearly communicated to work staff? Are there redundancies and inefficiencies as measured by interview data and examining human resources chart? 0.0 =no 0.5 =somewhat 1.0 =yes | | 0.5 | 1.0 | 0.0 | | |
| | 18. The employee/1000 connections ratio 0.5= 5-7 1.0= >4 | | 0.0 | 1.0 | 1.0 | | |
| | 19. Are new efforts to increase responsiveness to consumers implemented? (e.g., new customer attention centers created, new telephone hotlines created, manned, information tracked) 0.0 =no 0.5 =somewhat 1.0 =yes | | 1.0 | 0.0 | 0.0 | | |
| | 20. Does water utility have a functioning website independent from city hall? 0.0 =no 0.5 =yes, but not high functioning 1.0 =yes | | 1.0 | 0.5 | 0.0 | | |
| INSTITUTIONAL SUBTOTAL | | | 3.5 | 3.0 | 1.0 | | |

| | | NAUCALPAN | TOLUCA | NEZAHUALCOYTOL |
|------------------------------|---|-------------|---------------|----------------|
| FINAL NUMERICAL SCORE | | 16.0 | 12.0 | 5.0 |
| FINAL NOMINAL SCORE | When scale is divided into thirds such that 20/3=6.6; cases of Low Reform > 6.6, cases of Medium Reform fall between 6.6-13.2, and cases of High Reform are > 13.2. | HIGH | MEDIUM | LOW |

Chapter Six: Veracruz State's Municipal Cases in Comparative Perspective

6.1. INTRODUCTION

This chapter compares the three municipal cases within the state of Veracruz (Jalapa, Veracruz City and Poza Rica), which, with respect to the nine municipal cases in the dissertation, reflect relatively weak mayoral-business coalitions and insufficient state support, and corresponding low and medium municipal policy reform outcomes. Like the municipal cases within Guanajuato State, the reform outcome does not range considerably across the three cases in Veracruz State. Unlike Guanajuato, Veracruz's largest municipalities have not experienced an extensive reform process. The city of Jalapa experienced some reforms (medium), much like that of Toluca in Mexico State. The other two municipal cases under study, Veracruz City and Poza Rica, experienced low levels of reform but for different reasons. The three dimensions of the dependent variable in question are fiscal, operational and institutional policies, which together comprise the extent to which the reform policy was successfully adopted and implemented. The dependent variable scores for each of the three cases are Jalapa-Medium (11.5), Veracruz City-Low (5.5) and Poza Rica-Low (4.5) (see Appendix 6.1).

The dissertation distinguishes between state level and municipal level factors that lead to water services reform. The municipal level factor creates the most direct impetus for reform. Mayors are the primary agents for reform and they will be inclined towards reform based on the composition of their constituent base. These three municipal cases underscore how a mayor's electoral strategy in a particular municipality may not be the same as their party's typical constituent base at the national level, or in other regions. This is because mayors and local parties need to adapt to the specific socio-economic environment in which their electoral base lives. In Jalapa, PRI mayors were at once pro-business, and responsive to their electoral base of low and middle income consumers. Without a water intensive industrial base to support the reform agenda, mayors implemented some limited reforms, but were hesitant to pass the costs of reform to their business allies. PRI mayors were not able to coordinate an effective party strategy of credit claiming with respect to reforms across multiple administrations. In Veracruz City, PAN mayors continue to benefit from discretionary service practices, and a minor reform process in 2008 that was led by PRI administrations has been incomplete and plagued by partisan battles. In Poza Rica, no reform initiative was constructed due to both PRI mayors and PRI governor's political interests. In these three cases, there was no critical concentration of water dependent industry to support an extensive reform process, the few reforms that occurred in Jalapa were initiated by PRI mayors, and not the business community. The mayoral-business coalitions were non-existent in Poza Rica and Veracruz City, and existent but relatively weak in Jalapa.

For each of the three Mexico State metropolitan cases, I employ a two step approach. In section I, I explain the origins of the mayoral-business coalition, or the conditions under which one failed to form. In the three cases in this chapter, state level politics, an overreaching governor, ambitious general managers, and a myriad of in-fighting and partisan battles characterize the creation of weak mayoral-business coalitions, or their absence. In section II, I outline how the municipal policy reform outcome—or lack thereof—played out given the limited amount of mayoral-business support for reforms. In this section I analyze the adoption, or

resistance, of fiscal, operational and institutional policies within the municipal reform outcome. State level resources were limited in the Veracruz state case, and I discuss the role of state intervention in particular during the implementation stages of reforms.

The dissertation argues that if local level reformers are inclined towards reform, state level resources may be an important tool for reform-minded municipalities. Furthermore, political—and partisan—relationships between state and municipal politicians along party platforms may also shape how state governments affect the reform process at the municipal level. The Veracruz state case has a low level of institutional support for municipal service provision, but a high level of political and partisan intervention by the governor in municipal water provision. What has developed is the use of water and sanitation provision at the municipal level to reinforce the electoral appeal of the populist brand of politics pervasive in Veracruz.

6.2. VERACRUZ STATE SUPPORT (LOW)

State level institutional support is the second explanatory variable leading to the reform outcome, and although it is low in Veracruz State, it takes on a particularly interesting dynamic. During the first wave of decentralization in the 1980s, the Veracruz state government retained water service responsibility for the state government and did not promote further decentralization to municipalities. In this sense the state government created a “centralization” schema at the state level for nearly twenty years. While the state government provided water services directly to municipalities throughout Veracruz, it also had to allocate federal revenues to these water utilities, which were essentially under its domain. In 2001, there was a second wave of decentralization, where several new laws promoted municipalization²⁰¹ and market-based service provision.²⁰² Subsequently, 20 urban metropolitan areas have assumed responsibility for service provision as of 2010, and the state water commission continues to provide service directly to a total of 67 municipalities (many of which are small, but over 2,500 population).²⁰³ Therefore, decentralization to municipalities in Veracruz occurred later than the other two states under study, and to a lesser extent, although the “newness” of decentralization, however, cannot explain the low reform outcomes in Veracruz. The largest municipal water utilities in Veracruz range from decentralized metropolitan consortiums of two or more municipalities, decentralized municipal water utilities governed by one municipality, and municipalities whose water service is delivered by a local office of the state water commission. The three municipal cases selected for study reflect those three different modes of water service delivery found in Veracruz.

Veracruz state level policymaking for municipal water provision can be characterized as weakly institutionalized, which has led to both innovation and conflict in hydraulic policymaking. A pro-reform coalition at the state level created the Consejo Veracruzano in 2001 under PRI governor Miguel Aleman (1998-2004), which was a state level congressionally funded regulatory body for water and sanitation services designed to regulate the activities of all service providers in the state (including the state water commission). The Consejo Veracruzano was the

²⁰¹ See Congreso del Estado de Veracruz-Llave (2001a).

²⁰² See Congreso del Estado de Veracruz-Llave (2001b).

²⁰³ These figures do not include rural water operators, which are defined as areas with populations under 2,500. See Comisión del Agua del Estado de Veracruz (undated).

only body of its kind in the entire country. In terms of the legal support provided by the state government, in 2001, a state water law was passed that promoted cost recovery policies, but also allowed the mayor to select the board of directors of the water utility, which legally allowed the mayor to control the implementation of cost recovery policies (as was the case in Mexico State but not Guanajuato State).²⁰⁴ In terms of cost recovery pricing policies, no state wide initiative to standardize prices and create an annual congressional review took place. The regulatory body worked towards this goal, but was unable to achieve it before the new PRI governor, Fidel Herrera, took office in 2005. Herrera disbanded the Consejo Veracruzano after only five years of operation. Observers have commented that Herrera, a militant populist PRI governor, resented that “his” water institution, the state water commission, was being regulated by an institution (the regulatory body) that he did not control (anonymous respondent, 2008). Years of work by the Commission to build a state wide price restructuring methodology and track performance indicators was undone in a few short months. In Veracruz, an ad-hoc pricing system remains in place, which is only occasionally made publicly available, and is largely a reflection of a mayor’s political commitments rather than based on costs of service (anonymous respondent 101, 2008). Finally, the state water commission does not regularly provide decentralized municipal water utilities with technical assistance (interview with Zayas Herrera, 2008). Given that the state water commission continues to primarily be a service provider in the region, it reserves its technical support for its own water utilities. The municipal case discussions will demonstrate that in addition to the low amount of institutional support for municipal reform from the state government, PRI governors directly intervene in the affairs of PRI municipalities, further diminishing the autonomy of municipal policymaking in the state, and not necessarily aiding the reform process.

6.3. JALAPA: MEDIUM REFORM CASE

Jalapa²⁰⁵ is the capital city of the eastern central state of Veracruz, largely populated by an educated middle and upper income demographic, and is culturally influenced by the proximity of three major universities and a thriving arts and music scene. Jalapa’s economy is largely commercial, but surrounding agrarian production makes Jalapa one of the most important coffee export centers in Latin America. Jalapa’s mayorships have been from the hegemonic PRI party since the first half of the 20th century. At the national level in Mexico, PRI right-leaning presidents undertook extensive market reforms of different sectors of the economy in the 1980s and 1990s, which, as occurred throughout many labor-based parties throughout the region, created a contradiction in their governing strategy. In a similar manner, Jalapa’s medium level of reform has occurred under a series of PRI mayors with a pro-business stance. While the reform initiatives begun in 2005 and are still fairly young, the degree of reforms and the likelihood of extensive reforms being consolidated in future municipal administration remains low for several reasons. First, the business sector supported improved service provision but not the elevated prices associated with cost recovery pricing. In order to accommodate these important constituents and undertake some reforms, the reforming mayor has showed preferential treatment in pricing policies to these business constituents, which has alienated low-income users. However, reform-minded PRI mayors continue to also rely on low-income voters, hindering their

²⁰⁴ See Article 36 in Congreso del Estado de Veracruz-Llave (2001b). The board of directors is presided over by the mayor, a city council person in charge of water issues, three user representatives, a commissioner.

²⁰⁵ Also known as Xalapa-Enriquez.

ability to implement extensive reforms that would be unpopular with these constituents. Therefore, the reform process has not been supported by an extensive mayoral-business coalition that can sustain these reforms over time. Second, while some pricing policy reforms have been undertaken, the water utility has failed to make vast and highly visible improvements in service quality. Instead, the mayor and his administration continue to emphasize highly visible public works projects rather than extensive invisible network infrastructure improvements. These contradictions have created a medium reform outcome, more extensive than other cases under review in Veracruz state, but well below the higher cases of reform found in the four cases of Leon, Irapuato, Celaya and Naucalpan.

6.3.1. Mayoral-Business Coalition

Jalapa's water utility has only been decentralized from the state government since 2002. The state government had not substantively improved service during the twelve years it managed Jalapa's water utility, and transferred a water utility that was in poor condition.²⁰⁶ Since then, the Veracruz State Water Law has dictated that the mayor serve as the president of the board of directors of the water utility, which has built mayoral control directly into the service provision process.²⁰⁷ The board of directors is selected by the mayor, and does not serve as an independent source for or against reforms, but simply mirror the mayor's position. None of the mayors presiding over Jalapa have taken an active role in governing the daily operations of the municipal water utility, but rather they have left these decisions to the general managers they have appointed. Nevertheless, the mayors in Jalapa are the principle actors dictating the direction of the reform process, even if it is the general managers who carry out its implementation.

The few reforms that have occurred in Jalapa have not been subsidized or actively supported by business. The business community in Jalapa is largely commercial, and not based primarily on industrial manufacturing, which comprises 14% of the municipal economy. The aggregate production of water-intensive industry in Jalapa is 6%, and generates MXP0.6 million in sales annually—a very small sum. Instead, the commercial sector, including sales and services, accounts for 31% of the municipal economy (INEGI economic census data, 2004). Therefore, the business community in Jalapa was not industrially-oriented and heavily reliant on water, and not inclined to subsidize a reform process that would not benefit their overall production figures. However, business interests were strong enough, and sufficiently well-entrenched, to continue to want special favors from local politicians.

Therefore, mayoral impetus for some limited reforms were not driven by a strong mayoral-business coalition, but rather the repayment obligations generated from entering into a private participation contract in 2003. Immediately after decentralizing from the state government, Jalapa's water utility signed a contract with the firm ATX to create a privatized

²⁰⁶ The Veracruz Regulatory Body's figures for CMAS Jalapa in 2004 were: 66% commercial efficiency, 31% physical efficiency, 80% water coverage and 56% sanitation coverage. See Consejo del Sistema Veracruzano del Agua (2004).

²⁰⁷ Congreso del Estado de Veracruz-Llave (2001b).

sanitation treatment plant.²⁰⁸ The contract was signed under the mayoral administration of Reynaldo Escobar Perez (2000-2003), with the support of BANOBRAS and the National Water Commission. In order to sign the contract, the Jalapa borrowed a significant sum of money from BANOBRAS, which they were obligated to repay in periodic installments. Although the sanitation treatment plant would be a boon to Jalapa's development plan, the privatization contract was founded on unrealistic payment obligations for Jalapa's water utility.²⁰⁹ The water utility and its then president of the board, the mayor Escobar, was able to sign the contract, enjoy some of the immediate benefits (payment for the land, access to credit), and leave the politically unpopular act of increasing prices in order to pay back the loans for later municipal administrations. The two subsequent administrations to enter office, Ricardo Ahued Bardahuil (2005-2007) and David Velasco Chedraui (2008-2011), saw that the contractual relationship was in shambles: the firm had delayed its construction obligations for a variety of reasons and the water utility was unable to meet its financial contractual obligations because it had over reported its commercial efficiency. In fact, the water utility's financial health was much worse than it initially appeared. These circumstances led to cancellation of the contract in 2005, and created an impetus for extensive price increases that occurred nearly overnight—as will be discussed in the following section.

Therefore, one pro-reform (and market-oriented) mayor (Escobar) privatized the construction of a sanitation treatment plant, while another mayor (Ahued) later cancelled the contract. The contract cancellation provided impetus for some initial reforms, undertaken in order to raise enough financing for repayment of financial obligations generated from the privatization contract. The following section will demonstrate how one of the primary constituents of these PRI mayors—the business sectors—resisted paying the costs associated with cross-subsidies and service improvements. Instead, they wanted to continue to be subsidized by the government, and did not support the reform initiative. The partial reforms that did occur were initiated because of structural pressure from the privatization contract rather than a real commitment or leadership from Jalapa's PRI mayors. Furthermore, these reforms were undertaken by two mayors and one general manager who stayed on for two administrations, without the participation of the business community, an autonomous board of directors, an extensive network of technocrats, or state level support. Because the reform coalition was weak and lacks a commitment by a visionary mayor who sees reforms as a party building strategy, these reforms may not be consolidated over time.

While the state government has not provided institutional support for Jalapa's water utility, the governor's high levels of political interference have also stunted the development of the nascent water utility. When Jalapa's PRI mayor David Velasco Chedraui (2008-2011) appointed Manuel Ferro as the new water utility director, the acting director, Jorge Ojeda, was able to call in a favor from his childhood schoolmate, the PRI governor Fidel Herrera, and retain

²⁰⁸ The privatization contract was carried out as a BOT (Build, Operate and Transfer) contract with the support of the National Water Commission's PROMAGUA program that promotes BOTs in sanitation treatment plants by subsidizing the private company's capital investments.

²⁰⁹ The state level regulatory body, audited the contract and stipulated that in order to make its payment obligations to the private firm, the water utility would have to increase its physical efficiency from 58 to 80%, its commercial efficiency from 62 to 76% and take on a series of reform measures overnight. See Consejo del Sistema Veracruzano del Agua (2003).

his position as the water utility's director. The mayor Chedraui, frustrated with the governor's intervention but unable to cross the governor or his party, officially retained Ojeda as water utility director but stripped him of all duties, transferring them to a newly created position, director of finances and operations, which he gave to Manuel Ferro (anonymous respondent, 2008). Because of cronyism and party politics, Jalapa's water utility has two directors.

6.3.2. Municipal Policy Reform Outcome

6.3.2.1. Creating Cost Recovery (Fiscal) Policies

The price restructuring that Jalapa has been able to achieve is significant because it has been accomplished despite the inconsistent support the water utility has received from the state government. However, price standardizations occurred not through strategic long-term planning but rather because of the structural pressure brought about by the BOT contract cancellation in 2005. Under the Ahued administration, the water utility was able to quickly generate the mayor's support in stabilizing the sinking water utility. First, they began a controversial process of contract cancellation, which was drawn out over several years and through numerous judicial hearings.²¹⁰ Second, they passed a 35% price increase, arguing that in order to meet the contractual obligation they would need a 65% increase. Thirty five percent was a large sum, but by framing the increase around 65%, the smaller sum of 35% seemed less threatening (interview with Ferro, 2008). Mayor Ahued supported the price increases because the water utility was able to convince him that not doing so would lead to an insolvent water utility that would not be able to continue to administer service. The water utility's acting general manager, Manuel Ferro, was determined to protect the price restructuring gains made by the 2004-2007 administration, and with the support of Mayor Ahued, as of November 2007 was able to index their prices to inflation, creating automatic, gradual increases each month (interview with Ferro, 2008).

During the Chedraui administration (2008-2011), the water utility furthered their cost recovery pricing agenda by eliminating annual block payments in favor of metered consumption. These measures, coupled with more stringent collection practices, have generated a resistance to cost recovery pricing policies from both low-income users and business sectors.

Jalapa's fee collection practices continue to be undermined by both cronyism and administrative problems. While the water utility has doubled its operating budget in the last three years, it has done so by collecting payment on past due debt rather than modernizing its collection practices. Jalapa hired a private consulting firm to measure the amount of consumer debt incurred, and begin a program of past due payment recuperation through systematic service cut offs.²¹¹ This measure has been largely successful and has generated a significant amount of

²¹⁰ In 2006, a local judge sided with Jalapa's water utility against the sanitation contract, and rescinded the privatization contract citing failure to comply with contractual obligations by the firm. CMAS was able to negotiate a more favorable contract with BANOBRAS, reducing their monthly payment from 8 to 6 million MXP/month over 15 years instead of 18 years, as the private contract had stipulated. As of 2008, the water utility is scheduled to operate the sanitation treatment plant without the aid of private firms, and pay back their payment obligations through a new sanitation treatment fee (interview with Ferro, 2008).

²¹¹ "CMAS ira contra morosos," *Diario de Xalapa*, March 29, 2008; "Deben anios de agua y la síguen robando," *Diario de Xalapa*, February 22, 2010.

revenue for the water utility by cutting in half the number of consumers that owe the water utility.²¹²

However, these initiatives have been resisted by domestic consumers for several reasons. First, the financial records of the water utility indicate that while domestic consumers are receiving embargos on their property and service suspensions for not paying historic debts, the water utility has been more lenient with big business. Local commercial centers have not been made to pay their large debt obligations, which comprise the majority of the total amount of the water utility's debt. Water utility employees commented that they had been instructed to "pardon" and overlook the embargo process for large firms, political allies and friends of the mayor.²¹³ These irregularities became more troubling as it appeared that the mayor and the water utility were attempting to cover up their financial records in order to keep the composition of their debt catalog private.²¹⁴ These irregularities have prompted social resistance from civic groups in the city. These groups, such as FREDEPO (Frente de Defensa Popular) and Observatorio Ciudadano, accuse Mayor Chedraui of being in bed with big business in the same way that the prior Mayor Ahued had been, and in effect is subsidizing businesses at the expense of residential consumers.²¹⁵

Other fee collection practice measures have also prompted widespread dissatisfaction with the water utility. First, payment options remain archaic and untenable: many consumers must still pay in person and wait in line for hours at a time, electronic options are not extensive, and there is no customer attention hotline or bill collection service center that responds to bill payment issues.²¹⁶ Second, the accounting staff remains ill-equipped to analyze financial statistics and track the financial health of the water utility, leading to inaccurate reporting and misunderstandings over basic accounting practices (interview with Ascencio, 2008). Third, despite a high rate of installed meters (95-98%) and indexed pricing, consumers may still pay a block annual rate. Fourth, as many as half of the installed meters are out of order. Fifth, the lack of service continuity in the system means that the meters measure air instead of water (a common problem with metering in systems with partial service) and generate inaccuracies in billing.²¹⁷ Finally, antiquated accounting software and billing practices lead to a high level of inaccuracies in billing, which further angers consumers.

²¹² Kern Consulting (2008).

²¹³ "Embargará CMAS a mil morosos, excepto a Plaza Crystal y Américas," *La Jornada Veracruz*, October 30, 2009; "Empresarios y políticos, morosos de CMAS," *Diario de Xalapa*, June 24, 2008. The Mayor Chedraui and his family owns the Chedraui supermarket chain throughout the state, and are active members of the business community.

²¹⁴ "Antes depurará y acutalizará informacion: David Velasco," *Diario de Xalapa*, April 3, 2008; "Ordena IVAI a CMAS y Ayuntamiento de Xalapa dar información a particulares," *Diario de Xalapa*, November 29, 2007; "Ordena IVA a Ferro Andrade que proporcione los datos," *La Jornada Veracruz*, March 10, 2010.

²¹⁵ "Obras darán otra imagen a Xalapa: David Velasco," *Diario de Xalapa*, March 8, 2009; "No haga obras para ricos: Ahued," *Diario de Xalapa*, May 15, 2007; "Empresarios y políticos, morosos de CMAS," *Diario de Xalapa*, June 24, 2008.

²¹⁶ "Retrasos, quejas y confusions en CMAS por el pago del agua," *Diario de Xalapa*, December 28, 2006; "Por el agua, casi dos horas bajo el sol," *Diario de Jalapa*, February 27, 2009.

²¹⁷ "Altos cobros de agua porque las tuberías jalan aire, explica Velasco Chedraui," *La Jornada Veracruz*, September 29, 2009.

Not only was cost recovery pricing policies not evenly and adequately implemented, they have also not led to extensive improvements in service. The water utility's inability to make highly visible service improvements in a short amount of time has further hindered their ability to promote cost recovery pricing policies for consumers.

6.3.2.2.Limited Operational and Institutional Reforms

Revenue increases have fueled a modernization process that remains in its infancy. Service improvement has focused primarily on increasing coverage rather than service continuity or quality. From 2004-2007, Jalapa's water utility increased piped water coverage from 80-88% and sanitation coverage from 56-60%, while adding 11 km of potable water networks and 30,000 meters of sewer pipes.²¹⁸ While these were important improvements, coverage of both water and sanitation remains low as compared to urban areas and capital cities in Mexico.

Because Jalapa is situated within an area of water availability that is relatively high, the water utility tends to deliver discontinuous service (service is unavailable twice a week) primarily during the seasonal three month draught period, rather than throughout the entire year.²¹⁹ However, because the water utility does not have an automated network with the ability to stockpile reserves, they rely exclusively on extensive rainy seasons. When rainfall is low or when temperatures are extremely high, water availability can become a huge problem for citizens.²²⁰ Partial water scarcity can also occur when rainfall is concentrated in one region of the city.²²¹ Furthermore, because Jalapa has had extensive population growth in the last decade,²²² many neighborhoods are not connected to the formal grid.²²³ These problems have been aggravated by a failure to invest in maintenance of hydraulic infrastructure,²²⁴ as well as poor maintenance of the network grid by the water utility.²²⁵ The failure to extensively upgrade the network infrastructure has at times created social conflict as neighborhoods fight for limited water resources,²²⁶ and also exacerbated rent-seeking opportunities for third parties to profit by selling water access at exorbitant prices.²²⁷

²¹⁸ Consejo del Sistema Veracruzano del Agua (2007); interview with Ferro, 2008.

²¹⁹ Service discontinuity (*tandeo*) is generally high in Mexico, and most citizens have water storage containers outside of their home (*tinacos*) to store water for use during days or hours when they do not receive direct service from the piped network (interview with Pacheco, 2008).

²²⁰ "Racionan el agua; tandeo en 29 colonias," *Diario de Xalapa*, April 27, 2007; "Venden el agua a colonos; llevan 2 meses sin el líquido" *Diario de Xalapa*, March 12, 2007; "Pelean por el agua en colonias," *Diario de Xalapa*, April 1, 2007.

²²¹ "Escasez de agua en Xalapa," *Diario de Xalapa*, June 6, 2009.

²²² "Aumentó Xalapa en más de cien mil habitantes en cuatro años," *Diario de Xalapa*, July 12, 2009; "Tiene Xalapa crecimiento exponencial demográfico," *Diario de Xalapa*, May 25, 2009.

²²³ "No dotarán de servicios a 15 colonias en Xalapa," *Diario de Xalapa*, June 22, 2007.

²²⁴ "Los Lagos de El Dique podrían quedarse sin agua," *Diario de Xalapa*, March 28, 2010.

²²⁵ "Más de 30 fugas de agua al día en Xalapa," *Diario de Xalapa*, May 14, 2008; "Se desperdicia 40% de agua por mala administración," *Diario de Xalapa*, April 2, 2007; "Gran rezago en atención a fugas de agua en CMAS," *Diario de Xalapa*, May 12, 2007.

²²⁶ "Bloqueo: exigen agua," *Diario de Xalapa*, September 26, 2006; "Pelean por el agua en colonias," *Diario de Xalapa*, April 1, 2007.

²²⁷ "Lideres lucran con el agua: David Velasco," *Diario de Xalapa*, March 12, 2008; "Todo el peso de la ley contra quienes lucran con el agua," *Diario de Xalapa*, April 25, 2008.

The most telling sign of the water utility's underdevelopment of service is the lack of an updated network infrastructure map. Infrastructure maps (*padron de usuarios*) not only outline the piped system's complex and interweaving physical network, but also provide a record of connection. As of 2008, the water utility's infrastructure map remained outdated, feeding the ad-hoc and discretionary nature of many Mexico's public services. Without regulation of water access throughout the city, the directors of the water utility cannot control who accesses the municipal grid, and whether employees sell water access to individual consumers directly. In the past, the discretionary nature of the physical grid benefited their operations workforce, who knew the ins and outs of the grid from personal experience, and used this knowledge to leverage power over their directors, who had no official map to which to refer.

The major operational improvement that has been made is the completion of the sanitation treatment plant in 2010,²²⁸ after years of stalled construction due to funding issues stemming from the contract cancellation in 2005. After the contract was cancelled, the municipality restructured their debt obligations with Banobras and took on a less demanding, but still large debt obligation to finish the construction of the plant and fund its operation.²²⁹ These debt obligations have restricted the ability of the water utility to fund more extensive service improvements, as well as their fiscal reserves that could be used to finance projects undertaken with federal monies that require matching funds.²³⁰ Meanwhile, the water utility is in the politically unpopular position of creating a sanitation treatment fee for consumers in order to fund the operation of the treatment plant.²³¹ Resistance against a sanitation treatment plant has come from both low-income consumers and the business community. The business community in particular has been vocal about wanting a subsidy from the government with respect to sanitation treatment, "how is it possible that the state and federal government offers [us] subsidies for gas and electricity, as well as credits for business development, and [Jalapa's water utility] dares to charge [us for sanitation treatment]."²³² Resistance by the business community to pay for a larger share of the fee structure through cross-subsidies has prompted Mayor Chedraui to advertise that he is seeking funds from the state government in order to reduce payment obligations on the business sector.²³³

Institutional reforms in Jalapa's water utility have been limited. Training and further work staff education has been limited; there are many redundancies in administrative positions throughout the water utility and a high amount of cronyism has occurred in administrative hiring. Furthermore, the water utility has not reached out systematically to consumers through the creation of a website, civic education programs, or other methods of improving consumer satisfaction. Therefore, the water utility is rated as a 2.0 for institutional reforms (see Appendix 6.1).

²²⁸ "Concluida, planta de tratamiento de aguas residuales de Xalapa," *Diario de Xalapa*, March 9, 2010.

²²⁹ CMAS Jalapa owes Banobras \$476,800 million mxp over a period of 15 years. Source: "Diputados aprobaron reestructurar la deuda de Xalapa," *Diario de Xalapa*, August 8, 2007.

²³⁰ "Faltan recursos para que funcione sistema Zayleta-Perote que abatecerá de agua," *La Jornada Veracruz*, August 15, 2009; "Recorte de Hacienda obligaría a cancelar obras municipales," *Diario de Xalapa*, September 25, 2007.

²³¹ "Aumentará el costo de saneamiento," *Diario de Xalapa*, September 27, 2006; "Viene otra vez el cobro por aguas negras," *Diario de Xalapa*, July 8, 2009.

²³² "Empresarios se niegan a pagar por tratamiento de aguas residuales," *Diario de Xalapa*, January 24, 2009.

²³³ "Pedirá David apoyo al Gobierno del Estado para bajar tarifa del agua," *Diario de Xalapa*, March 10, 2009.

6.3.3. Conclusion

Mayor Chedraui's policy repertoire has been to attract business to Jalapa (mostly commercial), and advertise widely that his administration is bringing in large fiscal resources for construction and development, as well as for large public works.²³⁴ He has engaged in an extensive public relations campaign that has conveyed this message throughout this city—and in normal circumstances he may be able to use a highly visible reform process in the water utility to advance his political career. However, the water utility's debt obligations have put these pro-business PRI mayoral administrations (2003-2011) in a precarious situation. On the one hand, protecting commercial and industrial consumers from paying their historic debt and incurring a new sanitation treatment plant has protected a historic ally for Jalapa's PRI mayors-business. Unlike business communities found in PAN regions with water reliant industry, Jalapa's PRI business coalitions wanted to continue to be subsidized by the government, and expected their colleague, Mayor Chedraui, to allow them this consideration. However, because business is unwilling to shoulder the costs of these reforms, the mayor has had to back peddle on his reform stance. PRI mayors in Jalapa cannot lose sight of the costs of reform for low and middle income consumers, who also comprise an important portion of their constituency. The need to appeal to two contradictory consumer groups (lower and middle income, and commercial business), none of whom want to pay for reforms, coupled with the structural pressure of the city's debt obligations have made creating a highly visible and politically rewarding reform process increasingly difficult in Jalapa. In this context, PRI mayors must find other sources of funding (from the state or federal government) that can offset the costs of reforms-- in lieu of this alternative, extensive reforms remain politically unattractive.

6.4. VERACRUZ CITY (SAS): LOW REFORM CASE

The inter-municipal water utility located in Veracruz City, Sistema de Agua y Saneamiento (SAS) services three municipalities that make up a metropolitan region: Veracruz City (or the Veracruz Port), Medellin and Boca del Rio. This water utility began as a federal junta during the period of centralized service provision,²³⁵ and was disbanded in 1980, becoming an inter-regional water utility²³⁶ serving six municipalities under the auspices of the state water commission during the first wave of decentralization.²³⁷ In a subsequent push for municipalization in 2002, SAS was formed by eliminating three of the six municipalities in the

²³⁴ "Substituyé depósito a pago anual del agua," *Diario de Xalapa*, January 6, 2009; "Glosario del momento: Agua, asunto político," *Diario de Xalapa*, November 7, 2009; "No se perdonará a deducidos de CMAS," *Diario de Xalapa*, June 25, 2008.

²³⁵ The Junta Federal de Mejoras Materiales de Veracruz (1949-1980) was one of 47 juntas that operated in the country.

²³⁶ The inter-regional water utility was called CRAS (Comisión Regional de Agua y Saneamiento) and serviced the municipalities of Boca del Rio, Medellin, Veracruz, Alvarado, Jamapa and Manlio Fabio Altamarino from 1992-2004. The decision to create CRAS was the governors, who created three regional commissions in Veracruz, whereby the strongest water utilities would serve their neighboring cities. The six mayors were supposed to name the director of CRAS, but in reality the state water commission (CEAS) named the director. The state water commission controlled the finances and held decision making authority, while CRAS managed daily operations locally (interview with Yang 2008).

²³⁷ The Veracruz state water commission in the 1980s was called the Comisión del Estado de Agua y Saneamiento (CEAS).

inter-regional water utility and retaining the municipalities of Veracruz City, Medellin and Boca del Rio. The new water utility was named SAS, was decentralized from the state government, fiscally and legally independent, and governed a board of directors presided over by the mayors from the three municipalities.²³⁸

By the time SAS formed in 2002, political competition had begun in some regions throughout the state, and in particular in the three municipalities in question. The alternation between political parties in the three municipalities after decentralization, coupled with the difficulty of managing an inter-municipal water utility with municipalities from different political parties, has made undertaking a reform agenda in SAS very difficult. The following section will describe how, unlike other cases of successful reform initiatives that were led by the PAN party, in SAS, PAN mayors have been unwilling to undertake reform measures and have instead benefited personally and politically from maintaining discretionary service provision. Furthermore, the PRI state government has failed to provide systematic institutional support or regulation for reforms, but instead the PRI governor has used SAS as a political instrument to consolidate his power since 2008's PRI victory in Veracruz City and Medellin.²³⁹

6.4.1. Veracruz City Lacks a Mayoral-Business Coalition

Business has not played a role in reforming the SAS water utility. The three municipalities that make up the SAS consortium do not have a strong industrial production profile that is heavily reliant on water. Veracruz Port and Boca del Rio have aggregate production of water intensive industries that total 5% and 2% of the municipal economy, respectively. While Medellin's production aggregate production of water intensive industry is 57% of total municipal production, it only totals MXP \$0.46 million annually. These figures indicate a low concentration of water dependent industry. Therefore, business sectors, whether industrial or commercial, have not played a role in supporting reforms in the SAS water utility. Instead, mayors have led and—abused—the management of the water utility.

In order to understand the level of politicization and partisan battles that have characterized SAS's leadership for the last few municipal administrations, the political affiliations of each municipality are noted in Table 6.1.

²³⁸“Antecedentes históricos de la Comisión Regional de Agua y Saneamiento del Puerto de Veracruz,” Elizabeth Gutierrez Castañeda, received July 2008; Interview with Kuri, 2008.

²³⁹ It should be noted that the Veracruz metropolitan region is an important port and beachside resort for both the state of Veracruz and the federal government. It remains the most important maritime port in Mexico, founded in 1607 by Hernan Cortes as the first city in the region. The Veracruz governor Herrera sees developing services and infrastructure in the Veracruz metropolitan region as strategically important because of the economic profile the region brings through maritime port activity, tourism and some industrial development.

| | Veracruz City | Mayor | Medellín | Mayor | Boca del Rio | Mayor |
|-----------|---------------|---------------------------------------|----------|--------------------------------|--------------|--|
| 1997-1999 | PAN | Francisco Juan Ávila Camberos | PRD | Aquiles A. Rodrigez Exsome | PAN | Angel Deschamps Falcon |
| 2001-2004 | PAN | José Ramón Gutiérrez de Velazco Hoyos | PAN | José Maurilio Fernández Ovando | PAN | Adrian Sigfrido Avila Estrada ²⁴⁰ |
| 2005-2007 | PAN | Julen Rementería del Puerto | PT | Emilio Ramírez Quevedo | PAN | Francisco Jose Gutierrez de Velasco |
| 2008-2010 | PRI | Jon Gurutz Rementería Sempé | PRI | Rubén Dario Lagunes Rodríguez | PAN | Miguel Angel Yunes Marquez |

Sources: Instituto Electoral Veracruzano; www.boca.gov.mx; <http://www.veracruz-puerto.gob.mx/ayuntamiento/>.

Since decentralization to the municipalities, two periods should be underscored-- the first period (2002-2008) was a period of PAN control of SAS, and the second period (2008-2011) was a period of PRI control. In the 2001-2004 administration, the PAN (in Boca del Rio and Veracruz City) outnumbered Medellin's PRD government 2 to 1 but also yielding greater influence as the two larger and wealthier municipalities within SAS. When the PRI won Veracruz City and Medellin in 2008, the politically strong and affluent PAN in Boca del Rio became the minority voice in SAS, which has led to a myriad of partisan conflicts.

SAS is governed by a board of directors which is presided over by the three mayors, as per the regulations within the Veracruz state water law. Despite the participation of city council members and user representatives from the three municipalities, the mayors control the decision making process in SAS.²⁴¹ Mayoral control has had different consequences for the two periods under review, the PAN years (2002-2008) and PRI years (2008-2010).

PAN mayors created the decentralized water utility, SAS, in 2002. Decentralization to municipal governments was not mandatory in Veracruz State. Instead, municipal governments had to request a transfer of service responsibility from the state government to municipal governments under Law 24 (Congreso del Estado de Veracruz-Llave 2001a). The state government was PRI, and these municipalities, now that they were PAN, wanted to take control of the water utility, and in particular, take it away from PRI management (interview with Garcia, 2008). During the PAN administrations (2002-2008), the water utility maintained discretionary service provision. As the following section will demonstrate, this took the form of maintaining low prices, ad-hoc collection practices, and cursory hydraulic infrastructure improvements. The PAN mayors in question (see Table 6.1) were not interested in enacting far reaching reforms.

²⁴⁰ In 2000, Carlos Escalante Igual and Rafaela Montalvo Jimenez served as interimi mayors in Boca del Rio.

²⁴¹ Author observation from board of directors meeting held on July 11, 2008, in SAS, Veracruz, Veracruz.

Political consultants in Veracruz state argued that the water utility was rumored to be the personal checking account (*caja chica*) of the PAN mayors with little fiscal accountability and transparency.

SAS...was operated by PAN governments; they created it, and then governed it for several years. It was the refuge of PAN party members who were unemployed... they would put in their brother-in-laws, their cousins, their nephews. The number of people employed at SAS was extremely over inflated because of that. Because they were all from the same party, each mayor would take turns being the head of the board of directors...and each one managed it however they wanted. (anonymous respondent, 2008)

During this time the Consejo del Sistema Veracruzano del Agua (the Veracruz Regulatory body) audited the water utility and found that its principle problems were severe: “inadequate infrastructure, which leads to an inefficient and insufficient service provision, which generates dissatisfaction with consumers, which is reflected in the low amount of fiscal resources collected through consumer fees, as well as poor administration” (Consejo del Sistema Veracruzano del Agua undated). In 2004-2005, these mayors explored the possibility of privatizing the water utility by contracting a consulting company to undertake a feasibility study and evaluate the conditions of the water utility. The study proposed raising water prices and making a myriad of administrative changes so as to make the water utility attractive to investors. These processes did not get implemented, and the privatization project stalled in the initial stages (MIRANA, ARANA Y VELASCO, S.C. 2005).

SAS’ PAN mayors refusing to absorb the political costs of price increases differs greatly with the PAN party platform in other municipal cases under review in the dissertation. The divergence in the party’s strategy vis-à-vis water services reforms in different municipalities is a reminder that individual mayoral electoral constituencies may differ from the party’s typical constituency in other regions or at the national level. The PAN administrations in Veracruz, Medellin and Boca del Rio had a much more populist orientation than their counterparts in Guanajauto State. The lack of pressure from the state government to reform services or implement reforms further allowed room for the perpetuation of discretionary service practices. Although privatization contracts were discussed, they proved to be politically unfavorable and were therefore not implemented. While discretionary service practices remained the norm during this time, the mayors were able to coordinate their preferences and manage the water utility in a united front, at least compared to the second phase.

After years of PAN hegemony in SAS, the PRI won a crucial election in Veracruz City and Medellin in 2008. Boca del Rio remains PAN, in fact, so dominantly PAN that the PRI does not even run a mayoral candidate in the 2008 election in that city. These victories were seen as a strategic win for the governor’s party, who won Veracruz City by a landslide and also won all the regional districts (anonymous respondent, 2008). Once two out of three of the water utility’s municipalities belong to the PRI, Governor Fidel Herrera intervened directly and placed his confidante, Yolanda Gutierrez, as general manager of SAS. General manager Gutierrez had previously been the director of the state water commission, is a PRI party loyalist, and became the new general manager with the complete backing of the governor, who would occasionally make visits to the city and supports Gutierrez publicly.

Upon entering her new post, general manager Gutierrez began an extensive housecleaning of PAN loyalists, and took the reins with the decision making actions on the board of directors. Despite only being the general manager, she had the governor's full support. Describing her position within SAS, Gutierrez notes,

This is an imminently political issue. I was in the state water commission...I am sent down here, at the request of the governor, not even the mayors, because Veracruz, Boca del Rio and Medellin have a problem: there is not sufficient water provision for development. In 2006 or 2007, there were several companies that were going to develop here but did not because of lack of water, because they needed a certain amount of liters per second, because they were going to make yogurt, and I don't know what else. But there was not enough water for them, neither in quantity nor quality. (interview with Y. Gutierrez, 2008)

The placement of the governor's confidante as the general manager shifted the balance of power strongly towards the PRI municipalities, beginning a series of highly public conflicts between the PRI and PAN within SAS's leadership. These conflicts were led predominantly by Boca del Rios' PAN Mayor Miguel Angel Yunes.²⁴²

Mayor Yunes accused General Manager Gutierrez of mishandling funds, ignoring the directives of the three mayors, and wanting to implement a sanitation treatment fee that would hurt his constituents. In multiple highly public addresses to media outlets throughout the metropolitan region, Mayor Yunes claimed in 2008 that Boca del Rio would seek to secede from SAS so as to control their own finances.²⁴³ General manager Gutierrez fought back by stating that SAS was not mishandling funds, and that prior administrations that had left the water utility in financial disrepair had been PAN.²⁴⁴ Furthermore, Gutierrez claimed that Mayor Yunes was allowing populist sentiments to override his responsibility as one of the presidents of the board of directors of the water utility, "Yolanda Gutierrez asked that Mayor Yunes be responsible and not populist with respect to water prices."²⁴⁵ Gutierrez has gone further in her critiques of PAN administrations, noting that,

I am attentive to the people, [Yunes] is not. Because he is the son of the director of the ISSTE, he has an entourage. I come alone, without a chauffer, and he has an entourage and chauffer...he can see that I am gaining on him. I don't have to do anything other than my job...the [prior] PAN administrations were not attentive to the people, never. To access the general manager was impossible, much less having a conversation with him...(interview with Y. Gutierrez, 2008)

²⁴² It should also be noted that Mayor Yunes is the son of the governor's political enemy, Miguel Angel Yunes Sr, Director of the ISSTE (Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado), an important social security federal ministry, a long time PRI member who recently switched to the PAN and will likely run for governor in Veracruz. These tensions between the PRI governor and the PAN Yunes father and son team can be seen played out in SAS's management. Sources: Anonymous respondent, 2008; "Denuncia PRI estatal al PAN y a Yunes Linares," *Dictamen*, March 3, 2010.

²⁴³ "Off the Record: Ocurrencia de Yunes Márquez," *Imagen*, June 11, 2008; "Podría Boca del Río abandonar el SAS," *Imagen*, June 11, 2008; "Chiqui-Yunes vs. SAS!" *Notiver*, June 11, 2008; "Truena titular del SAS contra Yunes," *Imagen*, June 12, 2008.

²⁴⁴ "SAS no sera caja chica," *Política*, June 12, 2008; "Pedirá Boca del Río cuentas claras al SAS," *Dictamen*, June 24, 2008; Interview with Yolanda Gutierrez Carlin, Veracruz, Veracruz, July 7, 2008.

²⁴⁵ "Refutan postura de Yunes sobre SAS," *Imagen*, June 12, 2008.

While Yunes later agreed to not separate Boca del Rio from SAS, partisan battles continue to plague the inter-municipal water utility as mayors from different political parties attempt to manage the water utility, with the occasional direct intervention of the governor.

6.4.2. Limited Operational and Institutional Reforms

6.4.2.1. Failure to Create Cost Recovery (Fiscal) Policies

SAS has been unable to implement cost recovery pricing reforms, neither taking the initiative at the municipal level (as Jalapa had done) nor receiving support from the Veracruz State government (as seen in Guanajuato State, and to a more limited extent Mexico State). As noted earlier, in 2002, the Veracruz regulatory body had begun to compile information on the price structures of municipal water utilities, leading to a price schedule methodology handbook for water utilities in the state. However, because Governor Herrera disbanded the regulatory body prematurely, and because the state water commission failed to create such a state-wide initiative for pricing policies, discretionary price setting remains the norm in SAS. An audit conducted by the Veracruz Regulatory Body before it was disbanded notes that SAS lacked a pricing methodology for implementing cost recovery policies:

The lack of a pricing methodology for the short, medium and long-term makes the creation of prices and applicable costs for hydraulic services unfounded in a model of cost recovery, which would allow for the understanding of the real [economic value] for each of the services provided. (Consejo del Sistema Veracruzano del Agua undated)

Gutierrez admitted that the water utility subsidizes consumers as the only viable means to provide service. “For example, in the lower income groups, we charge \$MXP 1.17 per cubic meter, when the real cost is 3.97, but it is subsidized because the other way is [not possible]” (interview with Y. Gutierrez, 2008).

Since the PRI administration took over in 2008, a big debate about whether to charge consumers a sanitation treatment fee has further fueled the feud between the PAN Mayor Yunes and PRI management in SAS. When Gutierrez was director of the state water commission, a metropolitan sanitation treatment facility was created that serviced the municipalities within SAS.²⁴⁶ Since becoming General Manager of SAS, Gutierrez has been promoting a sanitation treatment fee for consumers, to be added to the water bill. Support for the new fee was split down party lines: PRI mayors in Veracruz and Medellin supported Gutierrez and the PAN mayor in Boca del Rio resisted this fee increase.²⁴⁷ As of 2009, the fee increase had not been implemented because of resistance by Boca del Rio against the politically unpopular fee, as well as the political feud between Mayor Yunes and SAS’s general manager.

²⁴⁶ These three sanitation treatment plants were Costa de Oro, La Olmecca and La Carranza.

²⁴⁷ Gutierrez was hoping to take advantage of the National Water Commission’s new program [*el Fondo Consursible*] that creates fiscal incentives for water utilities that treat their sanitation at \$MXP 0.70 cents per cubic meter. SAS would receive an additional \$MXP 0.15 cents per cubic meter for not draining their sanitation into the sea as part of another federal program, Programa Federal de Saneamiento de Aguas Residuals, PROSANEAR, which would total \$MXP 0.85 cents per cubic meter of federal subsidy that contributes to subsidizing the consumer’s sanitation fee (interview with Gutierrez, 2008); Author observation from board of directors meeting held on July 11, 2008, in SAS, Veracruz, Veracruz.

Although Guitierrez has been widely advertising that the new PRI management is cleaning up the mess made by prior PAN governments, Gutierrez is not willing to implement cost recovery pricing policies. Although she has made it clear that SAS needs to recuperate more fiscal resources, she has also stated publicly that despite increased costs of production in the last few years, prices would not be increased. Instead, the water utility would tighten their belts, and be more efficient in their water production and internal administration. In this manner, she has chosen to not to implement an exhaustive cost recovery pricing initiative that would be politically unpopular.²⁴⁸

Fee collection practices in SAS have remained largely discretionary, although some limited changes have occurred since 2008. First, meter installation remained at 8.8% in 2008, which indicates that revenue generation is well below costs, as well as a lack of regulation of water consumption. Second, enforcement of bill payment through service suspensions or embargos has not been feasible as of 2008, because SAS does not have the infrastructural capacity to do so, and because politically it has been a contentious issue (anonymous respondent, 2008). Third, a large number of clandestine connections have been identified, and the general manager has embarked on a mission to eliminate these connections which she claims she found upon entering her post in 2008:

There are N amount of developments that are being given water service, and SAS is not charging them...I'm talking about a minimum of 14,000 homes, at a minimum, and I keep finding new [ones]. When developers create these homes...there are processes that must be [legally] adhered to...but because the developer did not undertake proper procedures, or because of the complicity of SAS, [they are not paying]. These homes are receiving water from SAS...and [SAS] had not pressured the developer to pay for the water...for political reasons, for personal or political obligations, [etc]...(interview with Y. Guitierrez, 2008)

Fourth, past due accounts are astronomical in SAS—totaling \$MXP 485 million in 2008. The water utility claims that as much as \$MXP 160 is not payable due to the historic nature of the debts, so they are looking for legal means to erase portions of the debt, and also identify accounts where they can push for debt repayment. In many cases, businesses owe large portions of the debt, but they have since closed up shop and moved away, or died, and repayment is nearly impossible (interview with Y. Guitierrez, 2008; anonymous respondent, 2008).²⁴⁹ Fifth, few improved payment options were created in the first two years of the PRI administration; however in 2010 SAS began raffling off household products to consumers who pay on time in order to spur payment.²⁵⁰ SAS also provides a 50% subsidy for the elderly, and occasionally forgives late fees through debt forgiveness programs run by the three municipalities (anonymous respondent, 2008).²⁵¹ Finally, SAS has not implemented an extensive civic outreach to change public perception of water as a commodity, instead their civic outreach is limited to water conservation programs geared towards schoolchildren.²⁵²

²⁴⁸ “No sube el agua!” *Notiver*, August 17, 2009.

²⁴⁹ “Deben 360 millones a SAS,” *Notiver*, August 19, 2009; “No pagarán a SAS cartera vencida de \$160 mdp es incobrable,” *Imagen de Veracruz*, December 13, 2009; “SAS va contra los morosos!” *Notiver*, August 22, 2009.

²⁵⁰ “Premiará SAS a los cumplidos,” *Imagen de Veracruz*, March 3, 2010.

²⁵¹ “Concluirá SAS apoyo para jubilados,” *Imagen de Veracruz*, November 18, 2009.

²⁵² These programs, administered throughout the country, are called “Cultura del Agua” programs, and SAS’s is relatively advanced (interview with E. Gutierrez, 2008).

6.4.2.2.Limited Operational and Institutional Reforms

SAS's physical infrastructure is outdated and poorly regulated, which has led to a myriad of problems that have been difficult to correct in a short amount of time. For example, Gutierrez claims that in 2008 she found principle water tubes feeding potable water into the ocean, something that had likely been occurring for many years. Discretionary practices were evident in many components of service delivery, and Gutierrez wanted to expose and attempt to address some of these issues when entering her post:

There are \$MXP 485 million pesos of consumer debt, yes, [but I wanted to make it public] because I didn't steal the money, it wasn't my fault. That the unionized workers get drunk and crash our vans, yes, it happened, but, I fired them. That the director of operations was bottling our water and selling it for dollars in the Bahia, yes, but it wasn't my side business. Here they have [had] political support...the [staff] was not accustomed to working...but we have fired drunk workers, ones who steal things, who show up late, with the support of the union...we have to go against the inertia. (interview with Y. Guterrez, 2008)

Gutierrez claims that many of the indicators and performance figures had been "cooked" and that it was difficult to say with accuracy how many consumers they have, and how much water was being extracted and delivered. The official figures reported are 96% water coverage, 75% sanitation coverage, and 45% physical efficiency, with at most 80% of total water volume being measured at the source (macromedicion).²⁵³ However, lack of sound accounting makes assessing the operational aspects of service provision difficult.

An ongoing operational issue is that the beaches in the per-urban area are contaminated by sewage deposited by SAS. This high profile issue has received a lot of attention, prompting the state government to team up with the National Water Commission to help construct sanitation treatment plants for SAS. However, total percentage of treatment as of 2008 was 54%, leaving a significant amount of sewage to be deposited in either the beaches or other water sources throughout the region. This has led to numerous battles with SEMARNAT, the federal environmental ministry, as well as other groups (GREENPEACE) or political parties. While SAS works to increase their sanitation treatment coverage (without implementing a consumer fee for sanitation treatment) they continue to wage a public relations battle which further deteriorates their public image.²⁵⁴

Finally it should be noted that city planning between the three municipalities and the water utility has been disastrous, and SAS has struggled to provide service to new developments. One report notes that "the metropolitan region has suffered an enormous and disorganized population growth which severely impacts the environment, and will soon contaminate the water supply source, or create saltwater contamination to the freshwater supply."²⁵⁵ At the same time, half of the 400 low income neighborhoods in Veracruz City do not have sanitation provision, and a number of new residences that have sprung up in the last decade are receiving water provision

²⁵³ SAS's 2007 Report to the National Water Commission.

²⁵⁴ "Choriqueso desconfía de las playas!" *Notiver*, March 20, 2010; "SAS vs. Greenpeace!" *Notiver*, July 9, 2009; "SAS podría ser responsable del derrame de aguas negras!" *Notiver*, March 20, 2010; "SAS se deslinda," *Notiver*, March 19, 2010; "Que las playas no están cochionas!" *Notiver*, June 16, 2009; "Yolanda defiende sus plantas!" *Notiver*, April 4, 2010.

²⁵⁵ "Sobrepoblados Veracruz y Boca: Imposible dar servicios a nuevos asentamientos," *Imagen de Veracruz*, October 14, 2009.

but not officially registered as a customer.²⁵⁶ Poorly planned developments, unregulated license distributions to developers and complicit agreements to provide services to some consumers but not others in the prior PAN administration has further challenged SAS's ability to standardize and begin to regulate their water supply.

It is not surprising that SAS has failed to implement substantive institutional reforms—professionalization measures have largely been ignored, vast redundancies in positions exist (although they have improved since 2008), and a minimal amount of consumer outreach geared towards promoting a reform agenda. The water utility scores a 1.5 on institutional reforms subcategory (see Appendix 6.1).

6.4.3. Conclusion

In sum, reforms have yet to take hold in Veracruz City. Business support has been completely absent for reforms, I argue due to a lack of a critical mass of water intensive industry in the three municipalities in question. During the PAN administrations, mayors chose not to increase prices and standardize services, instead choosing to extract resources from the water utility and benefit politically from constituents—both from lower and higher income/business classes—that favored subsidized water services. While services were discretionarily managed, all three municipalities were on the same page about how they wanted to manage this service because they were from the same party. When the PRI administration began in 2008, a partisan battle began to be waged over how the water utility would be managed, with both sides blaming the other party for negligence, mishandling of funds, and for politicizing service delivery. General manager Gutierrez, with the highly visible support of the governor, has advertised widely that prior PAN administrations were negligent, and that she has a short amount of time to clean up after them. Despite her claims, the PRI governments that she represents (at both the municipal and state levels) have been unwilling to increase prices or adhere to strictly disciplined fee collection practices. They have opted instead for more minor improvements, such as creating some internal efficiency in their water supply, recuperating some prior debts, and attempting to extract as much federal resources as possible with the aid of the state government (interview with Y. Guitierrez, 2008). These initiatives have been the least politically costly for the PRI, and while they may provide some temporary relief, they are not a long-term solution for improving services among the three municipalities.

6.5. POZA RICA: LOW REFORM CASE

The city of Poza Rica²⁵⁷ lies in the water abundant region of northern Veracruz, and is one of the most important industrial and commercial centers in the state. Poza Rica is named for its historically high abundance of oil reserves, which have all but been depleted. Poza Rica's water utility (the Comisión de Agua del Estado de Veracruz, Poza Rica, or CAEV Poza Rica) is centralized under the Veracruz State Water Commission (CAEV) and operates water service while the Poza Rica municipality provides sanitation service. The Poza Rica water utility services the municipality of Poza Rica, but is jurisdictionally and legally under the auspices of

²⁵⁶ “Vivir sin servicios en 40% de colonias,” *Imagen de Veracruz*, November 15, 2009; (interview with Y. Guitierrez, 2008).

²⁵⁷ Formally Poza Rica de Hidalgo.

the state government, making it an institutionally different case than the other eight cases under study. As such, Poza Rica's water utility is caught in the middle of both municipal and state level political interests. Like the Veracruz state government, Poza Rica's municipal government has never belonged to another political party other than the PRI. The following section will demonstrate how the political interests of both Veracruz governors and Poza Rica mayors have affected service provision. Partisan interests, state-municipal relations and the structural impediments of the water utility's collective action contract have helped maintain discretionary service provision in Poza Rica. No mayoral-business coalition has formed, and coupled with low state support, Poza Rica's resulting reform outcome is low.

6.5.1. No Mayoral-Business Coalition

Poza Rica was founded as a PEMEX oil town in 1951, a condition that would prove to be a mixed blessing. During the principle years of oil extraction, PEMEX provided employment for thousands of citizens, and drew both state level and national attention from PRI officials because its oil wealth made it a strategically important city for the PRI. PEMEX actually constructed the potable water network that would later be transferred to the state government and become the CAEV Poza Rica water utility. Under PEMEX management, water service was not charged to consumers. However, once the oil reserves became depleted, Poza Rica's development slowed. The poor conditions under which the city found itself reflects the populist logic with which the city was managed as a company (PEMEX) town, and is now managed under PRI mayors.

Poza Rica's water utility's collective action agreement is modeled after the PEMEX labor contract when it was first designed in the 1970s, leading to a myriad of problems (anonymous respondent, 2008; interview with Rodriguez, 2008). The water utility claims to be bankrupt due to its labor contract, where approximately 50% of its budget goes to collective bargaining obligations. Many of the unionized employees began working when they were very young (e.g., 16), are retiring at an early age (e.g. 40), and receive a \$25,000USD retirement lump sum and continue to receive full benefits and a salary for life (interview with Leandro, 2008). The water utility cannot afford to buy out their young retiring workers, so they are obligated to pay these compensations. Management fears the day in the near future when they can no longer pay both the retired work force and their own work force. Because the collective action agreement severely limits the water utility's profits, Poza Rica's mayors have not wanted to municipalize the water utility (interview with Leandro, 2008). Therefore, the water utility remains under the state's legal jurisdiction, but within the physical dominion of the municipality—an arrangement that creates obligations to two tiers of government.

The water utility's relationship to the state government is relatively straightforward. The water utility is institutionally governed by the state water commission (and its board of directors), as specified under the Water Law passed in 2001. The state water commission sets general management policies and protocol for its water utilities and each local water utility carries out daily operations independently. There is virtually no civic leadership (including a role for business to participate) in CAEV Poza Rica's leadership, as there is, for example, in decentralized municipal water utilities. The state water commission supplies the Poza Rica water utility with infrastructure grants, but not money for daily operations, arguing that their water utilities must use consumer fees to finance operations. The infrastructure grants are federal funds

that state water commissions allocate to water utilities within their state.²⁵⁸ I have argued in the dissertation that state water commissions that are also service providers are more likely to distribute federal infrastructure funds to water utilities which they directly operate as opposed to funding decentralized municipal water utilities (interview with Zayas Herrera, 2008). However, in the Veracruz state water commission, a lack of equitable protocol for funds distribution to water utilities (both state and municipal ones) has made infrastructure funds distribution a discretionary decision left to the state water commission's director. Subsequently, Poza Rica's water utility has received sporadic aid for infrastructure construction through the years, and has several projects (network pipes, water treatment plant, sanitation treatment plant) that are either stalled or in the planning stages due to a lack of funds.²⁵⁹ Therefore, belonging to the state water commission does not guarantee improved service provision.

Furthermore, because the Poza Rica water utility is an arm of the state water commission, the water utility's general manager must be attentive to the governor's interests and those of his political party (interview with Rodriguez, 2008). In Veracruz State, Governor's Fidel Herrera's brand of populist PRI politics, while on the one hand has courted private sector participation and developed pro-business policies, on the other hand has sought to placate low and middle income voters who may otherwise be hurt by cost recovery policies.

The water utility's relationship to the municipal government is less legally prescribed than its relationship to the state government, but not any less important—particularly because both governments belong to the same party. The water utility's general manager notes,

[our] relationship with the mayor is one of respect, based on the premise that the mayor is the authority in this locality. He is not my boss, but he is the authority...I cannot do something that will cause a [social] conflict, and he not be prepared for it...the [civic] complaints...they go to [the mayor]...he is the one that has to answer to [the public]...we as a water utility are very inter-related with the mayor....(interview with Rodriguez, 2008)

Aside from the mayor being the ultimate entity responsible to civic complaints regarding water service, the mayor has the governor's ear, (and therefore that of the state water commission's director), so the water utility's general manager must stay in the mayor's good graces or risked being replaced.

Poza Rica's municipal government has a precarious relationship with the water utility. In one sense, mayors have been resistant to municipalizing the water utility because of its collective action agreement. However, water service remains deficient and has become a principle political issue for mayors. Observers estimate that as much as 30% of a Poza Rica mayoral candidate's campaign promises revolve around the promise of improving water service, such as "improving efficiency, increasing coverage, receiving service 24 hours a day" (interview with Rodriguez, 2008). Deficient water service in Poza Rica has become a principal concern for mayors, although individual mayors differ on how much direct support should be provided to the water utility:

²⁵⁸ Specifically APAZU funds from the National Water Commission, a program discussed in Chapter 2.

²⁵⁹ The general manager claims that in 2000 the CAEV Director, Yolanda Gutierrez, visited Poza Rica and decided to invest large sums in the water utility for infrastructure development. However, since then there have not been enough funds to complete the designated projects (interview with Rodriguez, 2008).

For certain mayors, because the state operates it, they think, this is the state's [responsibility], go to [them for resources], and they will resolve your problems...[to others we say], 'do you want to consolidate your political power...as a politician...[if so], water is the best way. Resources will not come from [your funds], you have to go knock on doors, we have to create plans...and we convince them...because civic conflict [ultimately] lands not on the water utility, but on the [mayor]. (interview with Rodriguez, 2008)

In 2002, one PRI mayor, Jorge Elías Rodríguez (2000-2003), attempted to address service provision by promoting the privatization of the water utility.²⁶⁰ He was unable to privatize the water utility (in part due to the labor contract), but began a sanitation treatment project (although as of 2008, it remains stalled). Other mayors have played lip service to improving service, but have not involved themselves with direct fundraising. For example, the PRI mayor Pablo Anaya (2006-2008) was the leader of the water utility's union and pushed Mayor Elías to invest in improving service during Elías's administration (interview with Rodriguez, 2008). As a mayoral candidate, Anaya was vocal about wanting to improve service quality, but as mayor his direct support has been less visible. Mayor Anaya's administration has been characterized by poor administration of fiscal resources, and by a habit of blaming the lack of infrastructure and quality services in the municipality on the "federal government, [who] does not send resources." As an outgoing mayor in 2009, Anaya left Poza Rica with an \$MXP 82 million debt.²⁶¹

While there has been no interest on behalf of mayors to support a reform process, neither has there been support from business. Industrial manufacturing makes up 29% of Poza Rica's municipal economy, and 26% of municipal economy does have water intensive industries, primarily chemical production (comprising 80% of water intensive industry in the city). However, the chemical production business in Poza Rica only produces \$MXP 3.0 million annually, making the industry a relatively small player. Without a critical concentration of water dependent industry, there has been little interest on behalf of business to subsidize a reform process. They have not pushed the city to municipalize service (which the city could do at any time), and instead, continue to receive substandard water service.

Without mayoral or business support for reforms, the Poza Rica water utility has operated with few resources or political will to enact reforms. The same general manager, civil engineer Narciso Ramirez, has retained his position for 15 years because of his keen understanding of the political relationships he must manage. Outlasting nine mayors has been no easy task because mayors enter office with political commitments, to which the governor is responsive because they belong to the same political party.

Political interests intervene...for example, [the state water commission director] can become a diputado candidate, and another politician takes his place. And the diputado [from Poza Rica] says, hey, replace [the general manager] because I want to [put in] my guy. So he asks the governor, the mayor has to consent, and if the mayor consents, there goes [the general manager's] job. (interview with Rodriguez, 2008)

However, as general manager, Ramirez is also a master negotiator and peacekeeper with both the state water commission's director and the mayor. He notes:

²⁶⁰ In 1994, President Carlos Salinas also attempted to create a partial concession in Poza Rica, as part of a wider program in Mexico at the time of promoting private-public partnerships in municipal water utilities. The governor of Veracruz at the time resisted the privatization initiative and plans were terminated (interview with Rodriguez, 2008).

²⁶¹ "Endeuda por 82 millones a Poza Rica Pablo Anaya," *Diario con la Información*, October 27, 2009.

[Poza Rica's] general manager must understand politics, because if he doesn't understand politics, it won't work. He must have [instincts], he must feel it out. For example, I know who my poorest consumer is, and who is my wealthiest. And between those two, I must understand who makes up the population, and I should know their tendencies, how they feel, and politically what I should do, how I should act. Why? Because it guarantees [my] ability to remain here. (interview with Rodriguez, 2008)

The following section demonstrates why political instincts and responsiveness are so important to the general manager, given the general public's general dissatisfaction with water services. As a state-run water utility, Poza Rica makes symbolic overtures towards reforms, however, because they are responsive to lower income consumers, and have no mayoral or business support for undertaking a reform process, they have not been able to take on the political costs of reforms.

6.5.2. Limited Municipal Policy Reform

6.5.2.1. Limited Cost Recovery (Fiscal) Policies

Historically price increases in Poza Rica have been a hotly contested political issue. The water utility claims that because Poza Rica was a PEMEX town that provided citizens water at no charges for decades, citizens have developed a practice of not paying for water that has been difficult to reverse (interview with Leandro, 2008). The poor quality service provided also does not help promote bill payment.

Water prices had not increased for several years, prompting an increase in 2002. Poza Rica's citizens responded to the price increases through protest:

There was a price increase and people protested, we had sit-ins and rallies, and all of this impacted the mayor. So the mayor said, 'don't increase prices [anymore], have them stay where they are.' We stayed this way for [three years], and when [it became unbearable]...is when they increased [prices] again, in 2005...but under a new mayor. (interview with Leandro, 2008)

The 2005 price increases prompted more protests, although relatively minor:

The [protests] were not of the same proportion [as those in 2002], although there were complaints, but there weren't at the time electoral campaigns...so there was no one to react. (interview with Leandro, 2008)

In 2006-2007, Poza Rica received direct support from the state water commission in price restructuring efforts. Although the Veracruz state water commission had not coordinated cost recovery pricing policies for all municipal water utilities (as did Guanajuato's commission), nor has another state government agency promoted standardizing prices (as was the case in Mexico State), the Veracruz state water commission promoted some price restructuring measures for its own water utilities. These policies have varied throughout the different regions in the state; in the northern region where Poza Rica is located, standardization policies were enacted for the cities of Coatzintla, Papantla, Gutierrez Zamora, Tuxpan, Tihuatlán and Poza Rica. The Poza Rica water utility's accounting director notes:

These price standardizations benefited us because [previously] our prices were [as low] as the floor. Standardizing our prices [with the other cities] meant that our prices increased anywhere from 100% to

300%, depending on the consumption range...our metered consumption was very low, now that these prices have increased, it is financially beneficial for us to [begin to] put in meters. (interview with Leandro, 2008)

Block annual prices (which affect 90% of consumers), became indexed to the minimum wage, which produces annual price increases that were gradual and less expansive than metered consumption rates.

Several key factors lessen the social impact of price increases, as well as decrease the potential financial gain from the price increases. First, metered consumption remains very low at just over 10%, which means that the 100-300% price increases do not affect nearly 90% of the population.

Second, new prices have been unevenly enforced:

When we standardized prices with the other water utilities [in 2006-2007], there was another price increase [around the same time], but we did not apply it. Because if we applied it we were going to have a big problem, because if our [annual block] prices increased to that extent, it would explode...so we spoke to the director [of the state water commission], and she [agreed] that we had standardized price with respect to the others, ours were among the lowest, but it was ok...if to a neighborhood association leader we gave a discount, applying the price one month but not the next...it's all based on politics, politics isn't supposed to interfere, but it does. (interview with Leandro, 2008)

In the same sense, service suspension and embargos has been politically contentious. The water utility's accounting director would occasionally suspend service for non-payment (a partial suspension) to some consumers, before it was allowed under the State Water Law in 2001. However, one consumer took the accounting director to court and a local judge sided with the consumer, which landed the accounting director in jail and later on probation. The water utility continues to make occasional partial suspensions but they admit that the threat is non credible, because consumers can easily undo the partial suspension, or even dig their own well in their backyard.

Third, past due accounts are large (\$MXP 34 million in 2006) and the water utility has made limited progress in enforcing payment on historic debt. Fourth, clandestine connections abound throughout the water utility: for a city with over 150,000 households, the number of registered users was 42,000 in 2008. The water utility thinks that there are two clandestine connections for each registered user (interview with Leandro, 2008). Fifth, payment options have not been modernized, although the water utility does send out bills to consumers--there are virtually no customer attention centers in the water utility's principle building. What is more common is consumers who have paid their bill coming to the office of the director, sometimes screaming, that they have paid their bill yet have not had water for several weeks (author observation). There is no infrastructure or personnel capacity to respond to these claims. Finally, no pricing comparatives, raffles, or other incentives to promote bill payment have been undertaken. As of 2008, billing efficiency (total revenue collected/total revenue billed) remained at just under 50% for the water utility.

6.5.2.2.Lack of Operational and Institutional Reforms

Despite the abundance of water in the region, Poza Rica's water utility is unable to provide adequate water for the population, either in quality or quantity. Although the city's population has more than doubled in the last three decades, the water utility continues to service the population with the same amount of water supply it used when it was first incorporated in the 1970s. Because subterranean water sources are abundant in the northern region of Veracruz, and because the water utility's water supply does not reach all consumers in the network, as many as 20-30% of the city's population are estimated to have their own well (interview with Leandro, 2008; interview with Moncada, 2008; interview with Rodríguez, 2008). Although these extractions are illegal because citizens do not have water extraction permits from the National Water Commission, there is little the water utility can do to regulate individual well extraction.

While service coverage has increased from 64 to 88% from since 1994, water continuity remains at 3.42%, meaning that 97% of consumers do not receive water in their homes 24 hours a day.²⁶²

The issue here is not that [Poza Rica] does not have sufficient above ground water sources, because we do, we have lots of access to these sources. The problem is that lack of infrastructure for transporting the water and the lack of potable water treatment plants, because above ground water sources must be treated. (interview with Rodríguez, 2008)

Because of the limited access to water registered consumers receive, and because of a lack of an adequate customer attention center or hotline, customers are often disgruntled, and even visibly hostile. The director of operations admits he does not have the infrastructural capacity to send water trucks to all consumers who complain of low pressure, or no service. Instead, he employs the method of "putting out fires" when they arise. Describing the problem of a woman who had recently come to the water utility for the fourth time that month for water service, the director of operations said:

When [consumers] come to us screaming, there is a reason. What I do is try to avoid a social conflict. There are problems that overflow, and when they do, it is for a reason. So they require immediate attention....this woman, for example, because of her [anger], I know to respond. [We] just need to give her water from the trucks-- that is all she is asking for, and she even pays her bill on time...so I respond. (interview with Moncada, 2008)

Water quality in Poza Rica is also a source of conflict. The underground water sources in Poza Rica have a high mineral content and are only treated with chlorine before entering the network infrastructure, where the water is further contaminated (a common practice in Mexico). Therefore, consumers receive dark and murky water. Local newspaper print stories with provocative headlines, such as: "Dirty Water in Poza Rica," and "Poza Rica's Water Produces Cancer."²⁶³ These headlines reflect the level of dissatisfaction with the city's water quality.

²⁶² Internal CAEV Poza Rica figures, 2008; (interview with Rodríguez, 2008).

²⁶³ "Llega muy sucia el agua en Poza Rica," *Diario con la Información*, September 22, 2009; "Agua de Poza Rica Produce Cáncer," *Diario de la Información*, June 30, 2009; "Alarma por turbiedad en el agua que envía la CEAV," *Diario con la Información*, March 17, 2009.

6.5.3. Conclusion

In sum, Poza Rica’s water utility remains stuck in the low-level equilibrium that characterizes discretionary service provision: low fee collection practices begets disinvestment in network infrastructure, which further undermines the ability to finance service provision through the collection of consumer fees. Without a concentrated water intensive industry, and with mayors whose constituent base is largely composed of the urban poor, no mayoral-business coalition formed to support a reform process. Although the water utility is under the state’s jurisdiction and must be responsive to the governor’s political interests, it must also be responsive to the mayor’s interests. Because both PRI governors in Veracruz and PRI mayors in Poza Rica have based their electoral support on providing discretionary benefits to low-income consumers, cost recovery reforms were not a politically attractive option for the Poza Rica water utility.

6.6. CHAPTER CONCLUSION

While there was some variation across the three cases under study in Veracruz State, all three fell in the lower end of the spectrum of reform outcomes, with Jalapa being the highest (medium), and Veracruz City and Poza Rica both being the lowest (low). Water management in all three cases was filled with partisan infighting, political battles, and rent-seeking opportunities. What were the patterns that emerged, or important differences, across the cases with respect to the variables under study?

The first pattern that emerges is the lack of strong business support for reforms in all three cases. I argue that business was disinclined to support the reform process due to a lack of a critical concentration of water dependent industry in the municipalities serviced by the three water utilities in question, as Figure 6.1 demonstrates (note that Veracruz City services the three municipalities of Veracruz Port, Medellin, and Boca del Rio).

Figure 6.1. Measures for Water Intensive Industry in Veracruz State

| Municipality | Aggregate Production of Water-Intensive Industries as a Percentage of Total Production (Concentration Measure) | Aggregate Production of Water-Intensive Industries (\$1,000,000) (Critical Mass Measure) | Critical Concentration of Water Dependent Industry? |
|---------------|--|--|---|
| Jalapa | 6% | 0.6 | No |
| Veracruz Port | 5% | 3.0 | No |
| Medellin | 57% | .46 | No |
| Boca del Rio | 2% | .15 | No |
| Poza Rica | 26% | 3.0 | No |

Source: 2004 Economic Census, INEGI Mexico; Pacific Institute’s Water Program

While industrial production was minimally important in these cities, business was a strong political player in Jalapa. In Jalapa, the business community that dominated the reform agenda was composed of commercial business (services, rather than industrial production). This group had ties to the PRI mayors in the city-- a relationship that engendered preferential treatment for business clients. Jalapa's business community, neither industrially oriented nor water intensive, was disinclined to support an extensive reform agenda and made sure that the water utility's cost recovery policies affected them minimally. For example, they did not participate in the debt repayment programs begun by the water utility. While their support was minimal, it is scored as medium low (rather than low) due to their compliance with some aspects of reform: such as accepting metering, and acquiescing to increased prices (industrial consumption based prices) that mayors initiated after the cancellation of the sanitation treatment plant privatization contract. In both the metropolitan region of Veracruz City and in Poza Rica, the business communities did not participate in reform agendas, earning them a score of 'low' in Table 6.2. In both of these regions, business enjoyed the same benefits of the low-level equilibrium low income consumers enjoyed: low quality service in exchange for subsidized (or free) water.

Table 6.2. Municipal Reform Coalition: Comparing Mayoral and Business Support across Cases in Veracruz State

| | | Mayoral Support | | | |
|-------------------------|-------------|----------------------------------|-------------|-------------|------|
| | | Low | Medium Low | Medium High | High |
| Business Support | Low | Ver. City (VZ) Poza Rica (VZ) | | | |
| | Medium Low | | Jalapa (VZ) | | |
| | Medium High | | | | |
| | High | | | | |
| | | | | | |

In all three cases, mayoral support for reforms was relatively weak compared to the nine cases in the dissertation, but strongest in Jalapa. Jalapa's mayoral support scored a 'medium low' because some cost recovery measures were introduced by mayors attempting to raise money in order to service the debt generated from the 2003 privatization contract on the sanitation treatment plant. Mayors in all three cases were responsive to low and middle income consumers who they feared would reject cost recovery policies. The rejection of extensive 'market-based' reforms in the water sector by mayors in this chapter came from both PRI mayors (in Jalapa and Poza Rica), as well as PAN mayors (in Veracruz City). The PAN's rejection of the same reform agenda in Veracruz City that had been popular in PAN cities of Leon, Celaya, Irapuato and Naucalpan underscores an important contribution of the dissertation. I argue that the primary driver of a mayor's decision to support the reform agenda is a mayor's constituent base, *not* his/her party identification. Partisan identity and electoral base are not synonymous—in fact,

party platforms from major parties are adapted to local contexts, signifying important differences between party platforms in one region versus another, and across multiple tiers of government. A PAN mayoral party platform in one region may differ from their state and federal level counterpart, or differ from the party platform that is articulated from the same party in another part of the country. Variation in electoral strategies within the same party is particularly true of mayoral politics, and is a good example of how studying municipal politics and party platforms informs our understanding of political processes more broadly in a particular country. If the focus of partisan politics remains at the state and federal level, these types of subtle observations are lost, and characterizations of a party's electoral strategies may be easily miscoded. Because PAN mayors in Veracruz City were not pressured by water intensive industries to reform, and because their primary electoral strategy was to cater to low and middle income consumers who rejected cost recovery policies, mayors did not see an opportunity to capitalize politically on an extensive reform process. In this context, it was more profitable to continue to administer discretionary service provision, and use the water utility as a source of discretionary income and employment for their friends and colleagues.

The Veracruz State government provided a low amount of institutional support to the three municipal cases in this chapter. In fact, the state water commission continued to directly provide service for all the municipalities under study until 2000. Jalapa and Veracruz City were late decentralizers, and Poza Rica never decentralized, but is still legally under the jurisdiction of the state government. This configuration of cases indicates the pattern of water provision in Veracruz state, a partial amount of decentralized water utilities belonging to large metropolitan regions (such as Jalapa and Veracruz City), and a partial amount of centralized water utilities, some of which also belong to large metropolitan regions (such as Poza Rica). Mayors have reacted differently to the opportunity of managing a decentralized water utility. Because of the lack of political and business support for reforms in many cities throughout the state, market-based reforms have proved illusive in many cities throughout the state. Some mayors have insisted on receiving the responsibility, and have enjoyed access to discretionary service provision. Others have not wanted to take on the headache of fighting with disgruntled consumers and managing a highly technical and under-funded public service, choosing to allow the state government to continue to manage service. The state water commission has provided a limited amount of support across the three categories of institutional support: legal, fiscal and technical. Instead, populist politics continues to dominate the state's management of water resources and municipal water delivery in Veracruz state. Rather than establishing a systematic and "rule-based" system of resource management, the Veracruz state water commission is beholden to whimsical and highly personalistic interventions from PRI governors, who intervene directly in municipal affairs and undermine professionalization and modernization protocols established by the National Water Commission.

Figure 6.2. Findings in Municipal Cases in Veracruz State

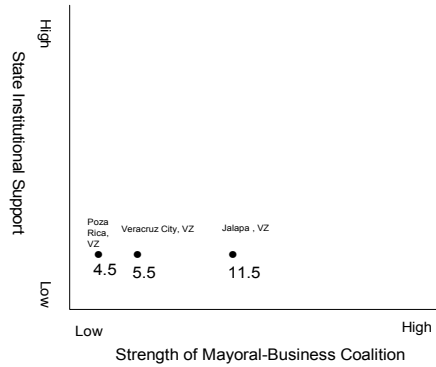


Figure 6.2 demonstrates how variation in strength of the mayoral-business coalition, coupled with a low amount of state level institutional support, lead to the municipal policy outcomes. The outcome is conceptualized along three dimensions (fiscal, operational and institutional), and the precise scores for each indicator in the dependent variable index is presented in Appendix 6.1. While Poza Rica and Veracruz City have scores of ‘low’ given the absence of mayoral-business support and low state institutional support, Jalapa scores as a medium reform outcome due to the very limited (medium low) support from mayors who accepted a minor amount of cost recovery pricing policies, and business who acquiesced to metering and elevated higher volume water prices, but in other ways blocked an extensive reform agenda.

Appendix 6.1: Municipal Policy Reform Index for Three Cases in Veracruz State

| | | MUNICIPAL CASES AND SCORES | | |
|---------------------------------|---|-----------------------------------|-----------------|------------------|
| Categories and Subtotals | Indicators | JALAPA | VER CITY | POZA RICA |
| FISCAL POLICIES | Cost Recovery Measures 1: Pricing Policies/Structures | | | |
| | 1. Is (new) pricing structure consumption based, with built in cross-subsidies? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 1.0 |
| | 2. Are non-water consumption service concepts (e.g. new meter installations, new tube placements, service installation) standardized across concepts? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 1.0 |
| | 3. Are new prices indexed (or otherwise regularly updated), guaranteeing periodic, incremental increases? 0.0 =no 0.5 =indexing to minimum wage or similar category 1.0 =indexing to cost calculations or similar category | 1.0 | 0.0 | 0.0 |
| | 4. Are prices published annually or otherwise made publicly available? 0.0 =not periodically 0.5 = periodically but not for all price change 1.0 =fixed periodic publication for all price changes | 1.0 | 1.0 | 1.0 |
| | 5. Are pricing decisions based on cost of service indicators or other cost based methodology? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 0.0 | 0.0 |
| | | | | |

| Cost Recovery Measures 2: Collection Practices | | | |
|---|--|------------|------------|
| | 6. % of meter installation 0.0=for lowest 3 0.5=middle 3 1.0= highest 3 | 1.0 | 0.0 |
| | 7. Is service routinely (partially) suspended for non-payment? 0.5= some 1.0= formal policy | 0.0 | 0.0 |
| | 8. Are clandestine connections routinely monitored and eliminated? 0.0 =no 0.5 =some 1.0 =yes | 0.5 | 0.0 |
| | 9. Are new, "easier to use" payment options created to promote bill payment? (e.g. electronic modes of payment, raffling household items, more payment centers and customer relations windows) 0.0 =no 0.5 =some 1.0 =yes | 0.0 | 0.0 |
| | 10. Are civic outreach programs created to promote a "culture of payment?" (e.g. pricing comparatives, advertising benefits of payment for service development) 0.0 =no 0.5 =some 1.0 =yes | 0.0 | 0.0 |
| FISCAL SUBTOTAL | | 6.5 | 3.0 |

| | | | | |
|-----------------------------|---|------------|------------|------------|
| OPERATIONAL POLICIES | 11. Are "leaks elimination campaigns" undertaken in order to increase water supply and regularize pressure throughout the network? 0.0 =no 0.5 =somewhat 1.0 =yes | 0.5 | 0.0 | 0.0 |
| | 12. Is pressure regularized throughout the network by creating elevated storage tanks or applying "breakers" in the entry points throughout the grid? 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 0.0 | 0.0 |
| | 13. Does the network become more automated, or "digitalized" (more measurement of how much, and where, and where, water enters and exits the grid) 0.0 =no 0.5 =partially 1.0 =yes | 0.0 | 0.5 | 0.0 |
| | 14. Have water quality testing and procedures been routinely implemented? (as measured by increase in potable water treatment plants, adhering to testing methodology (anything above chlorination), tracking water quality indicators) 0.0 =no 0.5 =some 1.0 =yes | 0.5 | 0.5 | 0.0 |
| | 15. Are sewerage treatment plant facilities constructed and/or in operation? 0.0=no, or treatment <10% 0.5= under construction and will be in construction with treatment > 90% 1.0= yes, in operation with treatment >90% | 1.0 | 0.0 | 0.0 |
| OPERATIONAL SUBTOTAL | | 3.0 | 1.0 | 0.0 |
| | | | | |

| | | | | | |
|-------------------------------|--|---|------------|------------|-----|
| INSTITUTIONAL POLICIES | | 16. Level of professionalization of work staff: is workforce made to undergo further training? Are employees well suited for their position given their training, education and experience? 0.0 =no 0.5 =somewhat 1.0 =yes | 0.0 | 0.0 | 0.5 |
| | 17. Institutional organization regarding human resources: are new protocols for work staff and job responsibility created and clearly communicated to work staff? Are there redundancies and inefficiencies as measured by interview data and examining human resources chart? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 0.0 | 0.0 | |
| | 18. The employee/1000 connections ratio 0.0= >7 0.5= 5-7 1.0= >4 | 0.0 | 0.5 | 1.0 | |
| | 19. Are new efforts to increase responsiveness to consumers implemented? (e.g., new customer attention centers created, new telephone hotlines created, manned, information tracked) 0.0 =no 0.5 =somewhat 1.0 =yes | 0.0 | 0.0 | 0.0 | |
| | 20. Does water utility have a functioning website independent from city hall? =no 0.5 =yes, but not high functioning 1.0 =yes | 1.0 | 1.0 | 0.0 | |
| INSTITUTIONAL SUBTOTAL | | 2.0 | 1.5 | 1.5 | |

| | | | | | |
|------------------------------|---|---------------|------------|------------|-----------|
| | | | | | |
| | | | JALAPA | VER CITY | POZA RICA |
| FINAL NUMERICAL SCORE | | 11.5 | 5.5 | 4.5 | |
| FINAL NOMINAL SCORE | When scale is divided into thirds such that 20/3=6.6; cases of Low Reform > 6.6, cases of Medium Reform fall between 6.6-13.2, and cases of High Reform are > 13.2. | MEDIUM | LOW | LOW | |

Chapter Seven: Lessons from the Politics of Urban Water Delivery in Mexico

Providing access to potable water and sanitation services is one of the most important policy challenges in the developing world. This policy area continues to be a challenge not for technical reasons—indeed, the associated hydro-engineering obstacles have largely been resolved in decades past. Instead, water and sanitation policy presents important political challenges that are not easily resolved with technical expertise or international development protocols. Financing infrastructure updates and maintenance over time requires local level political support over a relatively long period of time—a key political challenge that illuminates important debates within comparative politics. This concluding chapter summarizes the dissertation’s major findings regarding the effects of mayoral-business coalitions and state level support on municipal water policy reform. It also outlines the contributions made to the literatures on business-government alliances, multi-tiered governance and federalism, and decentralization and democratization. I conclude by identifying lessons and future research tasks that emerge from this dissertation project.

7.1. ARGUMENT REVISITED

Many important policy arenas necessitate a long time horizon for successful policy implementation, particularly in key areas of development policy such as infrastructure and public service provision. These policy arenas are rarely reformed in one or two electoral cycles because factors key to the reform process are acquired over a longer period of time—such as financing, human resource development, technical and administrative proficiency, and infrastructure construction. However, the political landscapes within which these policies are enacted are typically short-term windows, because public policymaking is not exempt from the constraints of electoral cycles, which are inherently short-term. These constraints can produce overly politicized and even volatile public policymaking as public policies shift, and are reversed, when new politicians—and their staff—enter office. The volatile nature of public service provision is particularly acute in the developing country context, where many people live below the poverty line, and where economic and political instability abound. The propensity to politicize public service provision is so high that reform proponents in international financial institutions and some scholars have argued that services that are massively consumed, such as electricity, telecommunications, and water delivery, will always need to be separated from politics in order to be successfully administered (Ménard and Shirley 2008; Henisz et al 2005; Savedoff and Spiller 1999; Levy and Spiller 1994). In contrast, I argue that politics must be part of any public utility reform package, because public service provision can rarely be separated from politics in the weak institutional environments that characterize most developing countries. Public services reform entails difficult policy choices in the short-term, and political support is necessary to implement these policies, such as tariff increases and rigorous fee collection practices. The key to successful policy implementation of services that are massively consumed and constrained by short-term policy horizons is not to completely separate providers from politics, but to extend the policy horizon under which reform implementation takes place.

The dissertation examines the political challenges of reforming urban water and sanitation services in Mexico. Years of subsidized and deficient service quality had led to what

Savedoff and Spiller (1999) call a “low-level equilibrium” in the water sector, where low tariffs lead to low consumer expectation about service quality, and results in low consumer willingness to pay for service; Mexican hydraulic experts call this the “vicious cycle.” The reform package promoted by the federal government was intended to correct the low-level equilibrium and promote improved service provision. Reforms entailed cost recovery policies that incur short-term costs for mayors charged with reforming the sector, such as increased water prices, rigorous fee collection practices, and the elimination of clandestine connections. While the costs of reform were felt in the short run, the benefits of reform were long-term service improvements. Furthermore, mayors in Mexico have a short-time horizon because of the electoral cycle: mayoral administrations are three years long with no immediate re-election. The short time horizon of a one time mayor is further exacerbated by the lack of a civil service at the local level; key staffers follow the electoral cycle and administrative turnover is high.

I argue that mayors whose constituent base is primarily composed of middle and upper income consumers and business are more likely to reform because these groups are more able to pay short-term costs for long-term service improvements than the urban poor. Although a mayor may only serve one term, a mayor’s party can extend the policy horizon in two ways. First, a mayor’s party can reward a pro-reform mayor with future party appointments, which encourages a mayor to act in the party’s interest rather than their own self-interest. Second, if a pro-reform party stays in power over multiple administrations, the pro-reform agenda can be extended because future mayors of the same party can be pressured to follow the ongoing reform program. Water-intensive business interests can also extend the short time horizon of a one-term mayor because they are entrenched in the local community and have sunk costs in the form of infrastructure, financial and professional ties, making them particularly interested in exercising their “voice” and supporting the reform agenda. Also, industrial clients pay a higher rate for high volumes of water through a block tariff cross-subsidy structure, in effect subsidizing domestic consumption. Therefore, water intensive industry can lower the costs to consumers before the long-term benefits of service improvements improve. Finally, state governments may extend the short policy horizon of a mayor because state governments can provide legal, fiscal and technical resources that can help shorten the learning curve of incoming mayoral administrations. State governments can shorten the long-term planning of reforms and make the process more consistent with shorter electoral cycles found at the municipal level. It is important to note that the mayoral-business coalition and state level variables operate in sequence: only if local level reformers are inclined towards reform will state level resources be an important tool for reform-minded municipalities.

Within this framework, we may review the preferences of the relevant primary actors, with respect to their short-term and long-term interests. Mayors prefer to respond to their primary electoral base, as well as the party’s agenda in order to advance their future political career options. The electorate is in this case also the consumer. Low-income consumers will prefer low prices and unenforced fee collection in the short-term over improved service in the long-term. Middle/high income consumers will prefer increased prices in the short-term for improved service in the long-term. Although consumers of all income levels would benefit from improved service, I argue that higher income consumers can afford to be more patient than lower income consumers because fee payments costs poor consumers a larger share of their salary. Higher income consumers also have more stable incomes due to the nature of formal—as

opposed to informal—employment. The preferences of low-income consumers are also shaped by the absence of systematic targeted subsidies for the urban poor in this sector at the municipal level, which were not implemented due to low administrative and organizational capacity of these water utility and their municipal governments. Finally, business will prefer to support the reform agenda if they are water-intensive industries, paying higher prices in the short run and the long run for improved service in the long run. In contrast, low water intensive industries will prefer to not support the reform agenda, paying lower prices and unenforced fee collection in the short run and accepting poor service. Business would have to pay more in both the short run and the long run because cost recovery policies depend on a cross-subsidy pricing structure whereby higher volume consumers pay more per cubic meter than lower volume consumers. High water intensive industries are willing to do so because they depend on high quantity water access, and to a lesser extent, higher quality water, for their industries. While non-water intensive industries would also welcome improved water service, they do not depend on this service for their livelihood. Therefore, non-water intensive industries will be less likely to want to pay high volume prices in both the short and long-term because they can buy substitutes, such as bottled water, if necessary. With these actors and their preferences in mind, I argue that if a mayor's electoral base is composed of middle/upper income consumers and business, he/she is more likely to support the reform agenda. In contrast, if a mayor's electoral base is composed primarily of the urban poor, these mayors are less likely to support the reform agenda.

The short-term policy horizon of a one-term mayor can be extended by a mayor's party and business actors in key ways. First, the party provides incentives for mayors to respond to the electorate with long-term interests. Although mayors cannot be voted back into office immediately, they can be rewarded by their party through future local appointments, party nominations for other local and state elected offices, and leadership positions within local or state party hubs. Second, if a pro-reform party stays in local office over a number of administrations, the pro-reform agenda can be extended and consolidated. I argue the presence of water-intensive industry in a municipality will make the reform agenda more likely. Business support is crucial for reforms because of the cross-subsidy structure whereby they subsidize a portion of the cost-recovery process, but they also serve to extend the time horizon of municipal government because they are entrenched in the community over the long-run and because they have sunk costs, in terms of sunk infrastructure, as well as long standing personal and professional ties in the municipality. Water intensive industry is a special interest that prioritizes improvements in service delivery and calculates costs based on the long run.

State governments may also help extend the time horizon of a one-term mayor. State governments are institutionally better positioned to undertake longer-term policymaking in Mexico. States have longer administrations (six years, as opposed to the three year municipal administrations), a civil service program, a greater taxing arm, and greater access to both federal funding and capital finance. States are also under greater auditing scrutiny than municipal governments because of the amount of federal transfers they receive, which creates greater accountability in state level record keeping than what is found at the municipal level. In the water and sanitation sector, state governments have been able to provide institutional support to pro-reform municipal administrations in the form of legal support, support for cost recovery pricing policies, and technical support. State governments may pass state water laws that provide a legal framework for market-based reforms in the water and sanitation sector, creating a legal

foundation for cost recovery measures such as increasing water prices to cover operational costs, embargoing a consumer's property for failing to pay water bills, and suspending water service for non-payment. State governments may also help coordinate state-wide cost recovery pricing reforms, mandating and codifying annual and systematic price increases into state revenue laws. Finally, states, through their state water commissions, may create protocols to provide municipal water utilities with technical support, such as training of municipal employees, and playing an advisory role for operational assistance, price setting, modernizing collection practices. States can also help gather and track municipal water utilities' performance indicators over time, providing an important informational resource for municipalities who suffer from poor record keeping, often due to turn over between political parties.

7.2. COMPARATIVE OVERVIEW OF MUNICIPAL CASES

Three empirical chapters (chapters 4-6) detail how mayoral-business coalitions and state level support accounted for the outcome along high, medium, and low categories of reform. I provide a brief summary below of how these explanatory variables worked in concert to produce a varied amount of reform in the nine municipal cases under study.

Guanajuato State government provided a high amount of institutional support along the three dimensions of support (legal, fiscal, and technical), creating rich institutional tools for municipal reformers. As we would expect, outcomes correlate with mayoral-business support and state level support in the three municipal cases. In the city of Leon, the business community was composed of a large industrial sector highly dependent on water resources for leather goods production. This powerful business community was organized and became very vocal around the issue, led by a handful of business leaders. The business community formed a type of boosterism, first under the PRI party and later the PAN, occupying positions within the water utility board of directors and promoted a lasting series of reforms led by a water utility director who was allowed to stay in his position for an unprecedented 15 years. Because the Leon business community was so supportive of reform and so powerful within the community, they were able to both garner the mayor's support but also keep him/her separate from operational decision-making, which extended the policy horizon of the reform process. With a high amount of business support and mayoral support, Leon's reform outcome was high. In the city of Irapuato, a business community dependent on industrial water use for food production supported the reform process and served on the board of directors. One of these business leaders began his political career as the president of the board of directors and went on to become mayor of the city, further promoting the reform agenda within several PAN administrations. With a high amount of state level support, high/moderate business support and high mayoral support, the reform outcome is scored as high. In Celaya, a mayor and his team of engineers pushed the reform agenda through several mayoral administrations within the same PAN party. Celaya has an active industrial community with manufacturing in somewhat diverse water-reliant sectors such as electronics and food production. The business community, while not as participatory as those in Irapuato and Leon, did not oppose the reform process. Celaya's reformers benefited heavily from state level support throughout the reform process. Celaya's reform outcome is also high, but not as high as Irapuato and Celaya.

The outcomes in the three municipal cases in Mexico State correlate with a varying degree of mayoral-business coalition strength. The PRI-dominated state government provided a medium amount of support for municipal reformers. Most municipalities received the legal framework and assistance in updating pricing policies, but very little in terms of modernizing collection practices and operational practices. The moderate amount of state institutional support did not deter the PAN led reform efforts in the city of Naucalpan. An enterprising mayor led the reform process during his municipal administration, and controlled it indirectly through two subsequent administrations before taking the reins for a second term as mayor in 2007. He counted on a moderate amount of business in Naucalpan's industrial hub which was reliant on water. Business sectors in Naucalpan were not as strong and vocal around the reform process as other reform cases, but did support the PAN mayor, and complied with the reform agenda, serving on the board of directors of the water utility and accepting metering of industrial production and cross-subsidy price structures. Therefore, Naucalpan's strong mayoral support and high/moderate business support led to a high amount of reform.

In Toluca, a moderate amount of reforms resulted from a weak amount of mayoral support for reforms. Although Toluca was an important industrial hub for the automobile industry, it was also home to a high number of low income residents that actively resisted metering. Although also PAN like their Naucalpan counterparts, a lack of leadership from mayors and business resulted in some reforms being implemented, but a small amount of consolidation and continuity of reforms over time. Finally, the city of Neza was not an industrial hub and had very little commercial services and a weak business community. The left-leaning PRD mayors were uninterested in the reform process because raising prices and exacting stringent collection practices would hurt their major electorate, the urban poor. In the absence of state level pressure for reform and without a business community to press for reforms, mayors in Neza chose to maintain the status quo of discretionary services, resulting in a low amount of reform.

Mayoral-business support was medium to low in the three municipal cases in Veracruz, which correlated with low reform outcomes. In addition, the PRI-led Veracruz state government provided very little institutional support for municipal reformers along all three dimensions. The city of Jalapa had a weak industrial business community but strong commercial services which could have pushed for reform or more strongly supported several mayors who flirted with reforming services over two or three municipal administrations. However, Jalapa's business community was accustomed to getting preferential treatment from the government, and preferred to continue to benefit from discretionary service provision. When one of the city's business leaders became mayor, he allowed for some reforms within the sector, but did not press for high metering and collection practices from his business colleagues. Without an industrial or commercial base to pay for the costs of reforms, Jalapa's reform outcome was moderate. The cities of Veracruz and Poza Rica both exhibited a low amount of reform due to a weak amount of state support and insufficient support from the business communities. Both cities have weak business communities, with minor industry and some commercial services. In the context of weak mayoral leadership, business preferred to continue to receive preferential treatment and maintain the status quo. This occurred during PAN led mayoral administrations in Veracruz City as well as PRI led control of Poza Rica.

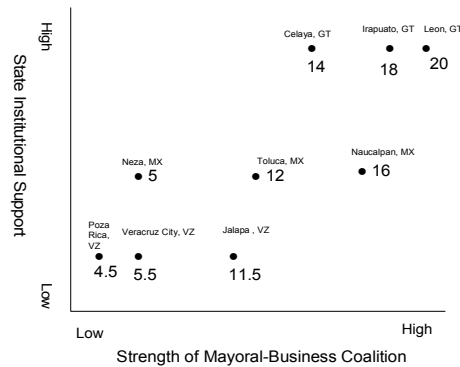
Table 7.1 demonstrates how variant degrees of business support and mayoral support worked in concert to produce a municipal reform coalition score for each of the nine cases.

| Table 7.1. Municipal Reform Coalition: Comparing Mayoral and Business Support Across Cases | | | | | |
|--|------------------------|---|----------------------------|-------------|---------------------------------|
| | Mayoral Support | | | | |
| | | Low | Medium Low | Medium High | High |
| Business Support | Low | Ver. City (VZ) Poza Rica (VZ) Neza (MX) | | | |
| | Medium Low | | Jalapa (VZ) Toluca (MX) | | |
| | Medium High | | | Celaya (GT) | Naucalpan (MX) Irapuato (GT) |
| | High | | | Leon (GT) | |
| | | | | | |

Figure 7.1 presents three dimensions in a two dimensional space, with the numerical scores measuring the municipal reform outcome (see Appendix A), and the two axes measuring two explanatory variables: the strength of the mayoral-business reform and the strength of state institutional support. Each state provided a constant amount of institutional support for the municipalities within their state: in Guanajuato (GT), the state support was high, in Mexico State (MX), the state support was medium, and in Veracruz State (VZ), the state support was low. Therefore the municipal cases within each state have the same score of high, medium, or low for the state level variable.

The dependent variable, the municipal reform outcome (to reiterate, measured by the numerical scores within the diagram), is strongly predicted by the two explanatory variables. Within the framework of this figure, the relative influence of the two explanatory variables on the outcome cannot be teased out, given that they are so strongly associated with one another. However, this relationship is analyzed in the three empirical chapters of the dissertation.

Figure 7.1. Findings for Nine Municipal Cases



7.3. SCOPE CONDITIONS

How does the argument laid out in the dissertation apply more broadly to a wider set of cases and country contexts? First, my argument applies to middle income countries which are more economically developed than the poorer countries in the developing world, fostering both a significant level of economic activity as well as high income inequality, and large populations living below the poverty line. Second, these types of reforms apply to democratic and particularly competitive party settings. Mexico, with term limits and fierce electoral competition is in a sense a most difficult context in which to implement these types of reforms. In contrast, in municipalities where there is little party turnover in the mayor's office, it may be easier to enact and sustain these sorts of reforms if the presiding mayor or party is pro-reform given the incentive patterns outlined above. Third, these types of reforms may best apply to a 3-party or multi party system as opposed to a 2-party system because the amount of votes mayors would need to attain in order to win office is smaller, making responsiveness to a middle class electoral base along these types of market-based reforms easier, because the middle class is generally not a majority in the developing world.

Finally, these types of reforms can apply more broadly to a wide range of challenging policies to be implemented in weak institutional settings. For example, municipal governments in federalist systems may be example of weak institutional settings due to limited fiscal resources, and professional and technical training. I argued that in Mexico these municipalities found it difficult to implement targeted subsidies than perhaps a provincial or national government would have, making these types of marketization strategies particularly unpopular amongst the urban poor. But other settings that are weakly institutionalized because they have little Weberian bureaucracy, rules change frequently or are not enforced, and are therefore also characterized by short policy horizons, would also be difficult settings for long-run policy implementation. In these settings, my argument about horizontal (business) and vertical (higher tiers of government) support from actors outside of the weak institutional setting would apply. Finally, policies involving services that are mass consumed and highly visible, such as public services, will be contentious policies to implement in weak institutionalized settings and difficult to separate from

political processes. In these contexts, support from actors outside of the political process that can extend the time horizon of government and augment governmental capacity will be important.

7.4. IMPLICATIONS FOR THEORY BUILDING

The analysis undertaken in the dissertation contributes to several major themes in comparative politics, such as the political economy of market reforms, federalism and decentralization, and the relationship between decentralization and democracy. In this section I review how the politics of urban water delivery illuminates debates within these literatures.

7.4.1. The Political Economy of Market Reforms

First, this study lays a foundation for thinking about market reforms more broadly than the typical set of market reforms packages, such as privatization, trade liberalization, macroeconomic adjustment and deepening of foreign direct investment.²⁶⁴ I have argued that while the cost recovery programs in Mexico's water and sanitation sector have not involved private participation schemes, they have entailed a similar set of policies with high political costs in the short-term for the promise of a wider societal benefit in the long-term. Cost recovery policies, such as subsidy elimination, price increases to cover costs, the implementation of rigorous fee collection practices, the elimination of clandestine connections, and service suspension for non-payment, have constituted a politically difficult set of policies for local politicians to enact, particularly in low income neighborhoods. Most importantly, as the privatization agenda has lost steam in many regulated monopoly sectors such as water and sanitation, new institutional arrangements, such as public sector driven cost recovery policies, have taken their place. I have argued that these policies unleash similar contentious politics as traditional market reforms, but they also sit in the middle of the public-private spectrum in terms of ownership and private capital investment. That is, they entail neither the full sale of public assets and entry of a private concessionaire, but neither do they represent the over bloated, subsidized and inefficient public sector service provision prevalent in previous decades in developing countries. I have termed these types of policies "market-based" policies, and have argued that they provide a new empirical setting to ask questions about the conditions under which governments adopt painful reforms, and why policy design and sustainability take on different forms in different contexts.

In this context, I have evaluated the utility of several lines of argumentation in the political economy literature in explaining the empirical observation observed in Mexico. The most promising set of works analyze the role of business-government alliances in market-oriented policy design and implementation. While prevalent theories of coalitional-government alliances have emphasized collusion and rent-seeking behavior between political and economic power (Etchemendy 2004; Schamis 1999; Corrales 1998), I have shown how business groups can participate in the policymaking process in order to bring about disperse and inclusive benefits for a wider population, in particular through public service expansion. This finding illustrates another side of business and politics not commonly emphasized in the business-

²⁶⁴ See Williamson (1990) for a review of the economic reform program that has been called the "Washington Consensus."

politics literature: the role of business as a civic actor in local communities. While business groups can collude with government in order to receive preferential benefits, they can also—through boosterism efforts—provide a source of civic pressure for improved local services. Organized and concentrated pressure for improved services from civic actors is an important means by which the otherwise short-time horizon of local policymaking can be extended.

7.4.2. Federalism, Decentralization and Multi-Tiered Governance

The research design chosen for the dissertation built in a comparative analysis operating at two tiers of government: the intermediate level (state) and the local level (municipality). The relationship between state governments and their municipalities examined throughout the dissertation (in Chapters 3-6) offer important insights into the changing face of federalism after decentralization reforms. Falleti (2010) argues that decentralization does not always increase the power of subnational governments. While Falleti's findings may hold for the initial sequencing reforms post decentralization transfers, I find that governance strategies post decentralization reforms take on a different dynamic. For example, in Mexico's water and sanitation sector, the strength of subnational authority (as defined by agenda setting) depends largely on whether there was shared partisan affiliation found between state and municipal governments. When municipalities in Veracruz were of the same political affiliation as the state governor, these municipalities were able to count on a greater set of fiscal resources and political clout from the governor to support improved service provision (for example, the Veracruz City PRI government post 2008). In these cases, municipal authority was augmented by the support of a friendly governor. Access to the governor did not necessarily result in improved service provision, but it did better position the municipality to access important resources that can be argued to boost their agenda setting power. In contrast, PAN municipalities in Mexico State did not receive special treatment when negotiating with their PRI state government. It is interesting to note that power configurations present during the initial stages of decentralization sequencing may take on different forms during the governance phases following decentralization reforms.

In all cases, decentralization reforms have invigorated federalism in Mexico with respect to policymaking (as opposed to political subnational power, or fiscal resources, etc.) because state, and in particular, municipal governments, have a greater level of policymaking responsibility. A particularly interesting challenge outlined in the dissertation is how states and municipal governments have been granted a series of shared, and often overlapping, policymaking responsibilities. This challenge has brought up the question of when and how states and municipal governments collaborate over shared policy agendas, and when contestation over policy agendas results in gridlocked policymaking. The empirical examples in the dissertation have demonstrated the challenges of multi-tiered governance (particularly within Mexico State and Veracruz), but also the ability of state and municipal governments to collaborate for long-lasting policy reform, as seen in Guanajuato State. Achieving state-municipal collaboration within a policy arena is difficult given the level of political competition in Mexico and the short-term nature of municipal governments. However, in the cases where states and municipalities are able to effectively share policymaking responsibility and create institutional structures that sustain collaboration over time, state governments can help municipal governments expand their otherwise short-term policymaking horizon.

7.4.3. Democratization and Decentralization

Does bringing services closer to the people being served promote civic participation and strengthen democratic quality? Studies of decentralization, dating back to Montesquieu, have debated the extent to which decentralization promotes democratic development.²⁶⁵ I have found that decentralization initiatives cut both ways: increased policymaking responsibility at the local level may create opportunities for local civic participation, but may also further politicize the policymaking process because local politicians will be less able to distance service provision from electoral pressures. When attempting to understand the relationship between decentralization and democratic quality, I would suggest a broader definition of democratic development. Decentralization to municipal governments has highlighted the need to develop local institutions and governance capacity to deliver public services that have important implications for public health outcomes, social capital development, and poverty reduction. These issues of economic and social development are inextricably linked to democratic development. The same political and institutional challenges that confront local governments in public service delivery diminish democratic governance: rent-seeking opportunities, corruption, a lack of professionalization and civil service training, and limited fiscal resources for good governance. Such factors undermine governance capacity, and as citizens grow apathetic and disillusioned with local government, they become more disinclined to participate in the democratic process. While not the primary focus, an important contribution of this dissertation is to outline the particular challenges to democratic governance post decentralization reforms, particularly given the institutional constraints of Mexican municipal government.

7.5. LESSONS AND FUTURE RESEARCH

This dissertation has provided a careful analysis of Mexico's urban water and sanitation sector, which yields important lessons and opens the door for future research on several fronts. The first point to underscore is how despite the belief by reform agents in international financial institutions that sound water management requires the separation of providers and politics, quality service provision is not only attainable, but perhaps only attainable, with the support of local politicians. The interconnectedness of politics and local service provision is due largely to decentralization trends to the municipal level throughout the developing world in the 1980s and 1990s. When national and state level bureaucrats manage water provision, they do so at a greater physical distance, which provides a buffer against potential civic unrest, and provides a greater opportunity to depoliticize the water provision process. However, when municipal governments are responsible for service provision, complaints about service are directed to the local city hall offices, and become a political problem to which mayors and their staff must routinely attend. Furthermore, despite privatization trends in the 1990s, water provision continues to be mostly administered by the public sector.²⁶⁶ The management structure for public sector water utilities is such that the directors are typically political appointments, making complete insulation of public service provision from electoral pressure unlikely. Despite the interconnectedness of public service provision and local politics, I have shown how water sector reform is possible at the local

²⁶⁵ See Grindle (2008), and Treisman (2007) for a literature review of this debate.

²⁶⁶ As of 2003, only 5% of the world's water sector was served by the private sector, see Budds and McGranahan (2003: 88).

level given specific conditions that provide incentives for politicians and other civic actors to invest in a long-term reform process.

Second, a comparative municipal study nicely illustrates lessons about local partisan politics that are missed when observing partisan governance strategies at higher tiers of government. The PAN cases in the Veracruz chapter of the dissertation demonstrate how partisan identity and electoral base are not synonymous in Mexico; indeed, party platforms from major political parties are adapted to local contexts throughout the country. I find in this study that mayors are more attune to servicing their immediate electoral base rather than remaining ideologically consistent with party platforms articulated at higher tiers of government within their own party. It may also be the case that while some mayors in Mexico are party militants, many mayors are less party loyalists than what is found at upper tiers of government. Variation in electoral strategies within the same party is particularly true of mayoral politics, and underscores how studying municipal party platforms informs our understanding of political processes more broadly in a particular country. Future research exploring how comparative municipal political strategies varies across country contexts and how they differ from electoral strategies and party platforms are higher tiers of government would be exciting, and relatively new terrain to examine within comparative politics.

An extension of the idea that what we observe at the municipal level differs from the national level political landscape is analyzing local business interests. As noted earlier, business groups can operate very differently within local politics than they would within a policy arena that affects them at a greater distance. That is, local business groups may be more likely to feel professionally and personally entrenched in a specific geographical community they inhabit over time, allowing for participation in local civic institutions and politics that have a greater social impact. It would be interesting to see the extent to which local business interests have helped fill the gap left behind by deficient governance capacity throughout the developing world. A systematic comparative study of boosterism activity in local politics in developing countries—and the relationship between local services provision or other state sponsored services—would be an exciting area for future research.

Fourth, a careful comparative analysis of one sector demonstrates the importance not only of case knowledge, but of sector specific knowledge using sector specific indicators to measure key concepts. For example, studies that have used one or two indicators such as coverage figures for water provision²⁶⁷ to measure water utility performance or even municipal governance capacity do not adequately measure these latter two concepts. Sector specific knowledge of the Mexican water sector reveals that highly urbanized areas have high water and sanitation coverage figures (e.g. 98% or 99%) but may suffer from the common problem of Mexican water provision: service discontinuity. The Neza case in the dissertation is an example of this ubiquitous problem throughout the country: 99% official coverage rates but service continuity that is less than 50%. Furthermore, upon further research one finds that water quantity and quality are abysmal, despite official recorded figures. This is because water utility figures in Mexico are self-reported by water utilities and not independently audited and verified by other tiers of government. This is one example of how an indicator such as water coverage does not adequately measure water utility performance. As such, these figures cannot be used as proxies

²⁶⁷ See Moreno-Jaimes (2007) and Cleary (2007).

for service quality (Moreno-Jaimes 2007) and much less the much more complex concept of municipal governance capacity (Cleary 2007).

Fifth, environmental issues such as water resources, air pollution, fisheries and land conservation are all examples of sectors that by their very physicality transcend political boundaries, and bring to the forefront the need to study multi-jurisdictional policymaking. Collaboration or contestation over the management of natural resources is occurring across multiple tiers of government at an increasingly more prevalent rate, offering an opportunity within political science to study issues of federalism and multi-jurisdictional governance. Relatedly, the relationship between state and municipal governments has been understudied in comparative politics, and future research might be designed to examine political relationships between mayors and governors, institutional relationships between subnational tiers of government, and governance strategies—whether in conflict or collaboration—between subnational tiers of government.

Finally, urban governance challenges will only become more acute as urbanization rates in developing countries continue to grow—in Latin America, urbanization rates are already 75% and the developing world is projected to be 2/3 urban by 2050 (UN Population Division). Rapid urbanization, inadequate supply of collective goods and the subsequent deterioration of urban and peri-urban natural resources amount to a complex and inter-connected threat on urban livability and social and economic development throughout the developing world. Contaminated drinking water delivered infrequently in small quantities hurts local business interests, further disenfranchises the urban poor, and compromises public health. Overexploited underground water sources threaten future water supply as well as investment in the local economy. Issues of wastewater run-off into rivers, streams and oceans hurts local tourism, local business interests, and poses health risks for all citizens. Waste management is another important collective good that affects the local urban economic and social network. Improper trash disposal finds its way into the local water supply, obstructs sewer networks and produces sewage run-off, contaminates public spaces, poses health risks and compromises local economic interests and local tourism. Air pollution due to rapid urbanization and limited regulation of local transportation likewise poses important health risks and threatens both urban livability and local economic development. Designing future research that examines urban development issues and their relationship with environmental resource degradation would not only contribute to a wide range of theoretical tracks within comparative politics, but also serve the purpose of addressing pressing policy concerns that have an enormous human impact.

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Appendix A: Municipal Policy Reform Index for Nine Cases

| | | MUNICIPAL CASES AND SCORES | | | | | | | | |
|--------------------------|---|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Categories and Subtotals | Indicators | LEN | CEL | IRP | NAU | TOL | NEZ | JAL | VRZ | PZR |
| FISCAL POLICIES | Cost Recovery Measures 1: Pricing Policies/Structures | | | | | | | | | |
| | 1. Is (new) pricing structure consumption based, with built in cross-subsidies? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| | 2. Are non-water consumption service concepts (e.g. new meter installations, new tube placements, service installation) standardized across concepts? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| | 3. Are new prices indexed (or otherwise regularly updated), guaranteeing periodic, incremental increases? 0.0 =no 0.5 =indexing to minimum wage or similar category 1.0 =indexing to cost calculations or similar category | 1.0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 1.0 | 0.0 | 0.0 |
| | 4. Are prices published annually or otherwise made publicly available? 0.0 =not periodically 0.5 = periodically but not for all price change 1.0 =fixed periodic publication for all price changes | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| | 5. Are pricing decisions based on cost of service indicators or other cost based methodology? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 0.5 | 1.0 | 0.5 | 0.5 | 0.0 | 1.0 | 0.0 | 0.0 |

| Cost Recovery Measures 2: Collection Practices | | | | | | | | | | | |
|---|---|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 6. % of meter installation 0.0=for lowest 3 0.5=middle 3 1.0= highest 3 | 1.0 | 0.5 | 0.5 | 1.0 | 0.0 | 0.5 | 1.0 | 0.0 | 0.0 | 0.0 |
| | 7. Is service routinely (partially) suspended for non-payment? 0.0= no 0.5= some 1.0= formal policy | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 8. Are clandestine connections routinely monitored and eliminated? 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |
| | 9. Are new, "easier to use" payment options created to promote bill payment? [e.g. electronic modes of payment, raffing household items, more payment centers and customer relations windows] 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 0.5 | 1.0 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 10. Are civic outreach programs created to promote a "culture of payment?" [e.g. pricing comparatives, advertising benefits of payment for service development] 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 0.5 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| FISCAL SUBTOTAL | | 10.0 | 7.5 | 9.0 | 9.0 | 6.5 | 4.0 | 6.5 | 4.0 | 3.0 | 3.0 |

| | | | | | | | | | | | |
|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| OPERATIONAL POLICIES | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 |
| 11. Are "leaks elimination campaigns" undertaken in order to increase water supply and regularize pressure throughout the network? 0.0 =no 0.5 =somewhat 1.0 =yes | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12. Is pressure regularized throughout the network by creating elevated storage tanks or applying "breakers" in the entry points throughout the grid? 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| 13. Does the network become more automated, or "digitalized" [more measurement of how much, and where, and where, water enters and exits the grid] 0.0 =no 0.5 =partially 1.0 =yes | 1.0 | 0.5 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 |
| 14. Have water quality testing and procedures been routinely implemented? [as measured by increase in potable water treatment plants, adhering to testing methodology (anything above chlorination), tracking water quality indicators] 0.0 =no 0.5 =some 1.0 =yes | 1.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.0 | 0.0 | 0.5 | 0.5 | 0.0 | 0.0 |
| 15. Are sewerage treatment plant facilities constructed and/or in operation? 0.0=no, or treatment <10% 0.5= under construction and will be in construction with treatment > 90% 1.0= yes, in operation with treatment >90% | 1.0 | 0.0 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| OPERATIONAL SUBTOTAL | 5.0 | 3.5 | 5.0 | 3.5 | 2.5 | 0.0 | 0.0 | 3.0 | 1.0 | 0.0 | 0.0 |

| | LEN | CEL | IRP | NAU | TOL | NEZ | JAL | VRZ | PZR |
|------------------------------|------|------|------|------|------|-----|------|-----|-----|
| FINAL NUMERICAL SCORE | 20.0 | 14.0 | 18.0 | 16.0 | 12.0 | 5.0 | 11.5 | 5.5 | 4.5 |
| FINAL NOMINAL SCORE | HIGH | HIGH | HIGH | HIGH | MED | LOW | MED | LOW | LOW |

When scale is divided into thirds such that 20/3=6.6; cases of Low Reform > 6.6, cases of Medium Reform fall between 6.6-13.2, and cases of High Reform are > 13.2.

Appendix B: Measures for Water Intensive Industries

| Municipality | Aggregate Production of Water-Intensive Industries as a Percentage of Total Production (Concentration Measure) | Aggregate Production of Water-Intensive Industries (\$1,000,000) (Critical Mass Measure) | Critical Concentration of Water Dependent Industry? |
|----------------|--|--|---|
| Leon | 40% | 26.9 | Yes |
| Irapuato | 58% | 11.0 | Yes |
| Celaya | 59% | 16.4 | Yes |
| Toluca | 23% | 20.4 | No |
| Naucalpan | 46% | 32.2 | Yes |
| Nezahualcoyotl | 20% | 2.0 | No |
| Jalapa | 6% | 0.6 | No |
| Veracruz Port | 5% | 3.0 | No |
| Medellin | 57% | .46 | No |
| Boca del Rio | 2% | .15 | No |
| Poza Rica | 26% | 3.0 | No |

Source: 2004 Economic Census, INEGI Mexico; Pacific Institute's Water Program

Appendix C: Data on Business and Residential Consumers for Nine Cases

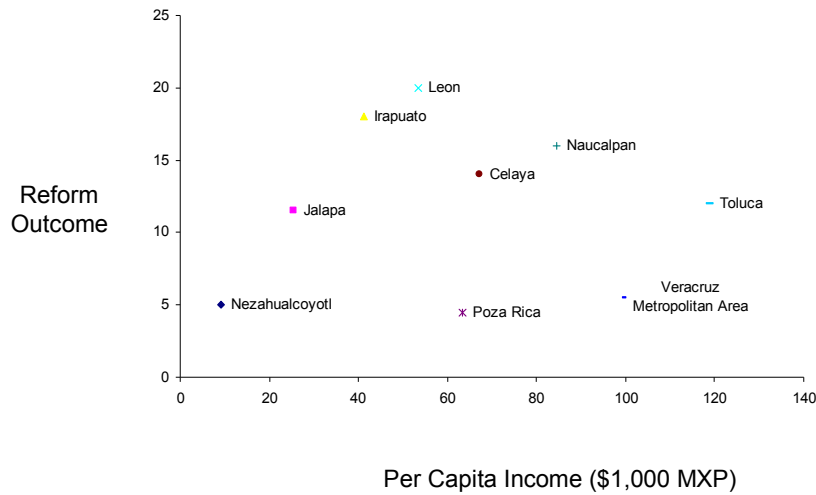
| | # of industrial users | # commercial users | # indus + comm users (total) | %business users | # of all users (domestic and non-domestic) | % of all metered indust + comm users |
|-----------|-----------------------|--------------------|------------------------------|-----------------|--|--------------------------------------|
| Leon | 2193 | 14658 | 16851 | 0.051761634 | 325550 | 100% |
| Irapuato | 407 | 4882 | 5289 | 0.064408885 | 82116 | 60% |
| Celaya | 69 | 5787 | 5856 | 0.056955562 | 102817 | 94% |
| Naucalpan | 1313 | 6833 | 8146 | 0.056549024 | 144052 | 92% |
| Toluca | | | 8459 | 0.06244233 | 135469 | 23% |
| Neza | 0 | 1343 | 1343 | 0.006718124 | 199907 | 0% |
| Jalapa | 1094 | 12772 | 13866 | 0.116943578 | 118570 | 92% |
| Ver City | 230 | 9860 | 10090 | 0.053676209 | 187979 | 42% |
| Poza Rica | 205 | 2884 | 3089 | 0.07471459 | 41344 | 37% |

Appendix D: Income per Capita for Nine Cases

Income per Capita

| Municipality | Income per capita (\$1,000 MXP) | Reform Outcome |
|-------------------------------|------------------------------------|----------------|
| Nezahualcoyotl | 9.18 | 5 – Low |
| Jalapa | 25.47 | 11.5 – Medium |
| Irapuato | 41.32 | 18 – High |
| Leon | 53.33 | 20 – High |
| Poza Rica | 63.43 | 4.5 – Low |
| Celaya | 67.23 | 14 – High |
| Naucalpan | 84.53 | 16 – High |
| Veracruz Metropolitan Area | 99.39 | 5.5 - Low |
| Toluca | 118.97 | 12 – Medium |

Income per Capita



Appendix E: List of In-Depth Interviews

Guanajuato Interviews

Ameneyro, Cristina. Director of Water Cultura Programs, Junta Municipal de Agua Potable y Alcantarillado (JUMAPA). October 28, 2008. Celaya, Guanajuato.

Baez, Agustin. Manager of Operations and Maintenance, Sistema de Agua Potable y Alcantarillado de León (SAPAL). October 22, 2008. León, Guanajuato.

Barroso, Miguel Alanis. Manager of Planning Department, Junta de Agua Potable y Alcantarillado de Irapuato (JAPAMI). October 20, 2008. Irapuato, Guanajuato.

Cardona, Luis Ramón. Manager of Commercial Efficiency Department, Guanajuato State Water Commission. October 14, 2008. Guanajuato, Guanajuato.

Chavez, Jose Luis. Coordinator of Public Relations and Water Culture Programs, Junta de Agua Potable y Alcantarillado de Irapuato (JAPAMI). October 20, 2008. Irapuato, Guanajuato.

Cuevas, Ana Lilia. Subdirector of Social Relations and Water Culture Programs, Guanajuato State Water Commission. October 15, 2008. Guanajuato, Guanajuato.

Escogido, Armando. Director of Commercialization, Junta Municipal de Agua Potable y Alcantarillado (JUMAPA). October 28, 2008. Celaya, Guanajuato.

Fonseca, Maria. Director of Commercialization. Junta de Agua Potable y Alcantarillado de Irapuato (JAPAMI). October 20, 2008. Irapuato, Guanajuato.

Garcia, José Manuel. Director of Programming, Guanajuato State Water Commission. October 14, 2008. Guanajuato, Guanajuato.

Gonzalez Nieto, Francisco. General Manager, Junta Municipal de Agua Potable y Alcantarillado (JUMAPA). October 28, 2008. Celaya, Guanajuato.

Guerrero, Vicente. Board of Directors of SAPAL, Leon's water utility (1992-1995); Director of the Guanajuato State Water Commission (1995-2000); (PAN Mayor of León (2006-2009). October 22, 2008. León, Guanajuato.

Holguin, Ricardo. General Manager of Junta de Agua Potable y Alcantarillado de Irapuato (JAPAMI). (2008-2013). October 16, 2008. Irapuato, Guanajuato.

Lara, Victor. Specialist in water pricing policy. October 30, 2008. Guanajuato, Guanajuato.

López, Jose Luiz. Head of Physical Efficiency Office, Guanajuato State Water Commission. October 14, 2008. Guanajuato, Guanajuato.

López, Maria. Coordinator of Rural Water Programs, Guanajuato State Water Commission. October 15, 2008. Guanajuato, Guanajuato.

Ordaz, Jesús. Public Relations Coordinator, Sistema de Agua Potable y Alcantarillado de León (SAPAL). October 27, 2008. León, Guanajuato.

Orozco, Encarnación. Manager of Operations and Maintenance, Junta de Agua Potable y Alcantarillado de Irapuato (JAPAMI). October 20, 2008. Irapuato, Guanajuato.

Mares, Juan Carlos. Legal Counsel, Sistema de Agua Potable y Alcantarillado de León (SAPAL). October 22, 2008. León, Guanajuato.

Mendoza, Elena. Manager of Public Relations and Water Cultura Programs, Sistema de Agua Potable y Alcantarillado de León (SAPAL). October 27, 2008. León, Guanajuato.

Meza, José Luis. Director of Water Utility Coordination and Development, Guanajuato State Water Commission. October 13, 2008. Guanajuato, Guanajuato.

Mireles Vazquez, Alfredo. Legal Counsel, Guanajuato State Water Commission. October 15, 2008. Guanajuato, Guanajuato.

Navarrete, Aurelio. Director of Social Relations, Guanajuato State Water Commission. October 13, 2008. Guanajuato, Guanajuato.

Ordaz, Jesus. Public Relations Coordinator, Sistema de Agua Potable y Alcantarillado de León (SAPAL). October 27, 2008. León, Guanajuato.

Orozco, Encarnación. Manager of Operations and Maintenance, Junta de Agua Potable y Alcantarillado de Irapuato (JAPAMI). October 20, 2008. Irapuato, Guanajuato.

Padilla, Eduardo. Manager of Commercialization, Sistema de Agua Potable y Alcantarillado de León (SAPAL). SAPAL. October 27, 2008. León, Guanajuato.

Polo, Felipe. General Manager of Sistema de Agua Potable y Alcantarillado de León (SAPAL) (1992-2006). October 28, 2008. León, Guanajuato.

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