

DISSERTATION

DECENTRALIZATION OF MEXICAN ENVIRONMENTAL AND WATER POLICY:
BAJA CALIFORNIA AND SONORA

Submitted by

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In partial fulfillment of the requirements

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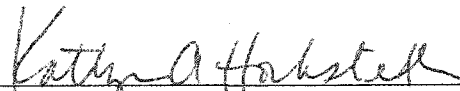
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WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY DONNA L. LYBECKER ENTITLED DECENTRALIZATION OF MEXICAN ENVIRONMENTAL AND WATER POLICY: BAJA CALIFORNIA AND SONORA BE ACCEPTED AS FULLFILLING IN PART REQUIEMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.


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ABSTRACT OF DISSERTATION

DECENTRALIZATION OF MEXICAN ENVIRONMENTAL AND WATER POLICY: BAJA CALIFORNIA AND SONORA

The last twenty years have brought heightened concern for environmental conditions in Mexico. In an attempt to deal with the increased demand placed upon the environment and thus the rising concern for the state of the environment in the diverse regions of Mexico, Mexico's recent administrations have stated support for the decentralization of environmental policies. Within Mexico, the northern border states have taken the lead in moving forward with the process of decentralization. However, even among the northern border states there is substantial variation within the process.

This dissertation analyzes the process of environmental decentralization within Mexico, examining the affects of social, economic and political variations on capacity building for decentralization. Two case studies, Baja California and Sonora, are explored in detail in order to examine variation within the process of environmental decentralization. Additionally comparisons and contrasts between two types of environmental polices, environmental protection and water policies are also explored. Results discuss variations and suggest the importance of elements for capacity building, in addition to drawing general conclusions about Mexico's process of decentralization.

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Environmental Decentralization and Mexico: An Introduction

Pieces of Mexican history reveal what, on paper, appears to be the story of a decentralized country: powerful regional forces and a formal federal structure (Meyer 1986). However, Mexico is historically identified as a centralized, corporatist state. In an attempt to invalidate this image, Mexican government officials have taken substantial steps toward decentralization in the last two decades. In line with these objectives, the Ernesto Zedillo Ponce de León administration (1994-2000) moved toward greater decentralization of the political system and it appears as if the Vicente Fox Quesada administration is following the lead. Mexico's change to greater support for decentralization has occurred as the world has come to support the concept as a proposed solution to public-sector problems.

By the late 1980s, decentralization gained widespread support around the world as a projected solution to long-standing problems of public policy efficiency and equity. The widely held assumption is that when government decision-making is brought closer to the public, there is an increase in public-sector accountability and therefore effectiveness (Fox and Aranda 1996). Following this trend, Mexico's federal administrations formally embraced the need to reduce their geographic, administrative, economic, and political patterns of concentration, and supported a move towards a system where the distribution of power would be more equitably balanced.

This platform shift, which reflected popular will, was first reflected in electoral successes of opposition parties—by the mid-1990s, parties on the right and left won key

state and local posts. Furthermore, the 2000 election saw an opposition candidate elected to the presidency for the first time in over seventy years. These transformations denoted the beginning of transference of power from the traditional PRI party to opposition parties and greater access to power for social groups (Wilder 2000, 890). In addition to shifting power among political parties, Mexico has also experienced transference of power through various forms of policy decentralization including, most notably, the policy sectors of health and education¹ (Torres 1986; Guerra Rodríguez 1987; Bennett 1990; Gonzalez Block, 1991; Bailey in Cornelius et. al 1994; Rodríguez and Ward 1994; Ornelas 1995; Fox and Aranda 1996; Rubin 1996; Rodríguez 1997). More recently politicians and citizens alike have begun to focus on the idea of decentralization within the environmental and water policy arenas.

Current attention on decentralization of environmental and water policies has been particularly intense along Mexico's northern border with the U.S. Within the border region there is a substantial degree of both domestic and international pressure to address environmental and water issues—issues that many border residents feel are unique to the region and thus need to be handled by people from the region. Distinct interlocking characteristics within the border region have led residents to claim atypical conditions that need to be addressed by locals. Geophysical characteristics have affected the distribution of natural resources, creating semi-arid, delicate conditions. Intense industrialization programs, associated population growth—some urban centers within the

¹ Substantial progress has been made in the decentralizing of the health and education sectors. These were the first policy areas targeted for decentralization. Education has been decentralized to all of the states, and in some regions is even being passed onto municipalities. Healthcare is also being decentralized, Zedillo signed agreements with all the states to complete the healthcare decentralization. It is important to note, however, that in both of these cases the handing-over from the federal government has been surrounded by controversy over the allocation of resources and decision-making authority (Rodríguez 1998).

border region have more than doubled since 1980—and lack of accompanying infrastructure, all that have placed increasing stress on the limited resources of the region. And internationally divided/shared watersheds and ecosystems lead to pollution and even health problems flowing freely between countries, affecting citizens on both sides of the border. These traits combined this with the last decade's drought conditions that intensified natural resources shortages along the border, and federal recognition of the economic importance of a region with easy access to the U.S. market, have increased attention within a once largely ignored region. All of this has added to border citizens concerns about the need to control their own environmental issues. Just as residents of the western U.S. believe those in Washington D.C. do not understand environmental issues in high plains deserts, residents along Mexico's northern border region believe the federal officials within Mexico D.F. do not understand environmental conditions within the semi-arid north. Peripheral location, far removed from the center of the country and the center of federal government, along with the border region's unique characteristics make the border region a prime area in which to explore the decentralization of environmental and water policies.

Despite increased awareness of Mexico's environmental and water concerns, particularly within the US-Mexico border region, and a growing scholarly attention on Mexico's political decentralization, environmental and water decentralization reforms and consequences have not been fully explored. This research project aims at deepening our understanding of the ongoing process of decentralization of Mexican environmental and water policies, particularly along the U.S.-Mexico border. Specifically, this study focuses on the questions: How is decentralization being shaped and implemented? And,

what are the causes of and responses to the decentralization of environmental and water policies in Mexico's northern border region, specifically in Baja California and Sonora? The project examines the impact of social, economic and political variables on capacity building for decentralization, in addition to exploring variations on decentralization within the region. Finally this work investigates differences in the process of Mexican environmental and water policy decentralization as each is developed and put into practice within the Mexican states of Baja California and Sonora. With this work, I hope to fill gaps within the existing literature on the process of environmental and water policy decentralization and variables that promote and impede decentralization.

Significance of the Topic and Contribution to Knowledge

The analysis of environmental policy decentralization in Mexico is of interest and will add to existing knowledge for a number of reasons. First, since the early 1980s there has been an academic discussion on the features, benefits and shortcomings of decentralization. Within this discussion many scholars, in addition to the international aid agencies, determined that decentralization is better than centralization (Leonard and Marshall 1982; Pineda-Pablos 1998; Cohen and Peterson 1999), and that decentralization is a critical element in the process of democratization (Leonard and Marshall 1982; Resler and Kanet 1993; Rodríguez 1997). These scholars suggested that decentralization improves management efficiency, enhances financial performance and brings government closer to people. Decentralization is also said to provide better services to client groups and supply a training ground for citizen participation and political leadership. Yet, despite these advantages, there are still questions about the shaping and

implementation of decentralization and the success of the decentralization process. This project attempts to add to these discussions.

Second, there is a growing emphasis on the importance of capacity building within the field of development. As a part of this, there has been a shift in focus from supporting mainly the provision of physical assets, as was done in the 1960s and 1970s, to increasing employee knowledge, skills and abilities and reassessing policy structures. This shift reflects recognition of the importance of all elements of capacity building, not simply the physical aspects, for development. By investigating the impact of capacity building on environmental and water policy decentralization, this work furthers the understanding of the political, social and economic elements of capacity building.

Third, for many developing nations, the environment in general and water in particular are volatile issues. Water itself is often a limiting factor for possible expansion in rapidly growing urban agglomerations. Thus, environmental and water conditions are frequently the basis of disputes between economic and social factors. For example, the ability to live in an area free of contamination and the availability of potable water must be balanced against so-called economic development. Actions taken to balance these two objectives are observed and critiqued by people around the world, in hopes that successful methods of capacity building to achieve a balance can be found and applied to other areas of the world. This research adds insight to this issue.

Fourth, in Mexico, the government sector is struggling to simultaneously decentralize and increase public participation, while maintaining low-cost basic necessities and improved services. Environmental and water policy changes impact the ability of a government to achieve these goals. This work adds to the understanding of

how Mexico is attempting to achieve its goals, and shows Mexico as a useful case study for assessing the impact of decentralization in a broader comparative context.

Finally, since the initiation of NAFTA, there has been increased attention given to environmental conditions along the U.S.-Mexico border. Both the U.S. and Mexican governments, in addition to NGOs, are expanding their knowledge of the environment in the border region. However, there is still a lack of research specifically on the implementation and adoption of decentralized environmental and water policies, the variations within these policies, and the impacts of these policies. It is necessary that scholars critically reflect upon not only the government structures, finances, education, chemical or health problems associated with borderland environmental conditions (López Murphy, Libonatti and Salinardi 1995; Guillén 1996; Rodríguez 1997), but also the political processes that impact environmental conditions and water quality and quantity. This project attempts to fill a part of this gap.

In summary, an analysis of two of Mexico's states and their capacity to decentralize and maintain effective control over their environmental and water policies is of interest to those looking at the process of not only formal, but also actual decentralization. This project adds to the existing literature on Mexican decentralization through investigation of the geographic, historic, demographic, economic, and political/institutional variables that impact capacity building for environmental and water policy decentralization. Results from this research will not only enrich literature on water resource management, decentralization and environmental politics, but also will inform researchers, environmental organization leaders and government decision-makers of the efficacy of decentralized policies, environmental initiatives and state institutions.

Ultimately, an analysis focusing on decentralization and participation will result in a better understanding of how state and local political actors, organizations and institutions maintain relations with the federal system and how this determines the outcome of environmental policies.

Framework for Research

The following chapters look at decentralization in Mexico's environmental and water policies. Chapter one begins with a discussion of the concept of decentralization, variations within decentralization, determinants of decentralization, and finally capacity building for decentralization. The chapter then moves into a discussion of decentralization of environmental and water policies and ends with a literature review of Mexico's environmental and water policies. Chapter two combines these topics in an examination of the Mexican government's process of decentralization, first looking at the topic in general, then focusing more specifically on Mexico's formal environmental and water policies and the agencies charged with implementation of the policies. Finally chapter two concludes with a brief discussion of Mexico's environmental and water policies within the borderland region. The third chapter lays out the research design for this study, discussing factors affecting decentralization. Chapter four expands upon the research design, exploring Mexico's border states to explain the choice for Sonora and Baja California as case studies, and setting out generalities of the case studies and explains the methodology used in this study. Chapters five and six look in detail at the process of environmental and water decentralization in Sonora and Baja California. These case studies do not simply identify what each level of government—federal, state

and municipal—has done to promote decentralization, but also attempt to set the stage for explaining the difference in decentralization for environmental versus water policies and between the states. Chapter seven lays out comparisons between the two states and between environmental and water policies. This final chapter draws conclusions about environmental and water policy decentralization within Sonora and Baja California and discusses lessons and possibilities for general decentralization in Mexico.

Chapter 1:
Decentralization, Mexico, and Environmental and Water Policies:
A Literature Review

The U.S.-Mexico border region is ripe for study of environmental and water policies. A brief survey of the existing literature reveals some critical themes and provides insight into Mexico's environmental and water policy issues. Furthermore, exploration of this literature's development over time reveals the beginnings of concern surrounding decentralization issues and foreshadows differences between environmental and water policies. However, before looking specifically at environmental and water policies, it would be helpful to first gain an understanding of the concept of decentralization, what it is, its variations, and what elements affect decentralization. The following sections explore decentralization, and then move into a literature review of Mexican environmental and water issues.

Decentralization as a Concept

A central problem of our time, for many countries, is gaining consent and support for expanding activities ascribed to state and local government units. It is widely agreed that with greater involvement of varying levels of government, work will be done more effectively and efficiently, addressing more problems and finding more successful, lower-cost solutions (Maddick 1963; Teune 1982; Rondinelli et al. 1984, 29; Wolman 1990, 30-32; Silverman 1992). What is not agreed upon is what determines variation within

decentralization. Although general characteristics such as the federal government's attitude toward sharing responsibility impact the process of decentralization, what can explain variation within a country? What stimulates some state and local governments to take-on decentralization when others do not?

In order to address questions such as these, it is first necessary to understand the concept of decentralization: its advantages and disadvantages, its types and modes and the distinction between vertical and horizontal decentralization.

Defining Decentralization

The literature on decentralization has produced a plethora of competing definitions (Rondinelli 1981a; Rondinelli, Nellis, and Cheema 1984; Smith 1985; Rondinelli, McCullough and Johnson 1989; Bennett 1990; Rodriguez 1997). This is due to the fact that the concept of decentralization is broad and its component parts are many. A single definition, therefore, disguises a complex and highly varied set of phenomena. Nevertheless, in order to discuss the concept, a definition of decentralization is helpful.

At its simplest, decentralization is defined as the opposite of centralization—the undoing of centralization (Landau and Eagle, 1981, 1). Un-simplified as reality is, and falling short of “perfect decision autonomy and hence pure decentralization” (Leonard 1982, 28), decentralization may be conceptualized as: the *process* of the dispersion of functions, authority, and power from a small number of participants in the center to a larger number of participants, including participants in the periphery (Rodríguez 1997, 8-9). Decentralization is not an end state or a final goal that can be fully attained in a set

period of time, but rather a series of measures followed in an attempt to eliminate reduce over-concentration.

Evolution of Decentralization

Although most academics and development agencies increased their attention on decentralization in the past two decades, development of the concept of decentralization occurred over decades. This development consists of at least three phases in the evolution of decentralization thinking, each emphasizing different, but cumulative objectives. The early 1960s found proponents of decentralization linking decentralization to transitions to independence, political equity and responses for increasing demand for public goods and services. By the mid-1970s, decentralization was considered an important aspect of promoting development objectives, improving management and sustainability of funded programs and facilitating grassroots participation in development processes. Finally, since the mid-1980s, decentralization has been promoted as a means to advance the emergence of civil societies, support the growth of democratic institutions, establish market-oriented economies in which public sector tasks can be privatized and facilitate more efficient and effective provisions of public goods and services.

In sum, the evolution of discourse on decentralization began with a debate concerning the strengths and weaknesses of centralization and decentralization, which continues today. This, in turn, inspired the dissection of a number of types and modes of decentralization and continues with debates concerning the determinants of decentralization.

Centralization Versus Decentralization

Although most scholars admit that centralization and decentralization are often found together, the majority of these scholars will also suggest that one of the two is best for given situations. This said, in the 1950s and 1960s, international assistance agencies required central control due to the need for a central administration to guide and control the economy and to integrate and unify nations that were emerging from long periods of colonial rule (Rondinelli and Cheema 1983, 11). Their argument for centralization advanced the need for a strong and neutral central state where decisions are made for the good of the people and country as a whole. In addition, it was suggested that centralization promotes an organized, unified system of control, reducing conflicts and overlapping jurisdictions and services (Gulick 1937; Waldo 1948).

More recently, centralization has been supported under the pretense of governance, suggesting that for newly independent, developing nations, creating a strong central state is the only way to coordinate the development of infrastructure and to establish a governmental administrative system (Borja 1989; Graham 1990; Wolman 1990). Furthermore, the literature maintains that centralization allows the national government more discretion in shaping regional, racial and cultural differences and may thus compensate for disparities (Bahl and Linn 1994). From this perspective, centralized governments maintain superior abilities in administration and management of public services since, in many developing countries, there are not enough skilled managers to fill positions in both the central and local governments (Bahl and Linn 1994). Overall, the centralization literature contends that maintaining a system of control protects the

public as a whole and is therefore more beneficial to the public than decentralization (Barrera Zapata and Ferreyra, 1989).

Unlike centralization literature, the early arguments for decentralization did not argue on behalf of a cause, but rather, against centralization. These arguments challenged the principle of concentrating authority on the grounds that there are no justifications for or experiences demonstrating that administrative services are of a higher quality when carried out by a single head. Likewise, they suggested that having a small group of people with extensive responsibility for administering anything as vast and complex as a state government is ridiculous, that central governments suffer from a lack of knowledge of local conditions, and that in practice, increasing the power of the leader results both in a discontinuity of personnel and policy and the replacement of experts by spoils-men (Lancaster 1934; Waldo 1948).

More recent literature² suggests that decentralization is designed to relieve the administrative congestion that burdens centralized systems, thus allowing the center to think and act in terms of strategy, rather than dealing with day-to-day bureaucratic operations (Smith 1985; Rondinelli and Nellis 1986; Rodríguez 1997). This literature also asserts that decentralization fosters *esprit de corps* and creativity in the government (Wolman 1990) and is a route to increased efficiency and effectiveness of economic and social development programs (Maddick 1963; Teune 1982; Rondinelli et al. 1984, 29; Wolman 1990, 30-32; Silverman 1992).³ Decentralization is considered a path to greater

² For a complete survey of the trends in recent decentralization literature, see Cohen and Peterson (1999, chapter 1).

³ Bahl and Linn (1994) agree with this, although they also modify it. They suggest that for fiscal decentralization, the case is much stronger for developed countries than it is for developing countries where local councils are often not elected and adjustments in the allocation of local resources are often restricted

responsiveness, accountability and transparency in governance, and an avenue toward increased participation by ethnic minorities and social groups often excluded or overlooked under centralized governments (Rondinelli and Nellis 1986; Wolman 1990; Warren 1992; Willis et al. 1999).

In essence, the fundamental disjuncture between centralization and decentralization is that “some functions of the state are inherently better handled by the center while others are inherently better resolved by a deconcentrated structure” (Cohen et al. 1981: 34). It is even proposed that centralization and decentralization go hand in hand, and that an efficient government decentralizes by centralizing--the more bureaucratized a state, the more possibilities there are for decentralization of decision-making (Perrow 1977).⁴ Therefore, it is necessary for a government to decide what should remain centralized and what should be decentralized, and to what degree the decentralization should take place. This evident complexity shows the necessity of distinguishing among the major types and modes of decentralization.⁵

by the national government. Likewise, Smith (1980) notes that even advocates of decentralization concede that initially there can be a decline in efficiency.

⁴ Perrow (1977) discusses how the modern bureaucracy has more levels of hierarchy than the inefficient old-fashioned bureaucracy did. This increase in levels of bureaucracy is a form of centralization in that the size of the government at various hierarchical levels is increasing. Yet, at the same time this process allows for more decisions to be made by the lower levels of hierarchy because those at the uppermost levels narrow their span of control and supervision. Perrow supports his findings with evidence from Peter Blau, et al., “The Hierarchy of Authority in Organizations,” *American Journal of Sociology* (January 1968, pp. 453-467).

⁵ The names given to the concept of types and modes of decentralization can vary author to author. For example, authors such as Cohen and Peterson (1999) discuss “forms” of decentralization, while Rodríguez (1997) refers to this same concept as “types” of decentralization. Despite alternative names, the concepts themselves remain the same.

Types, Modes, and Variations of Decentralization

Types of Decentralization

Within decentralization literature, distinctions are made among four types of decentralization: political, economic, spatial, and administrative decentralization⁶ (Wolman 1990; Rodríguez and Ward 1994; Parker 1995; Rodríguez 1997; Cohen and Peterson 1999). Political decentralization identifies the transfer of decision-making power over the nature of policy and aims to give more power for decision-making to citizens or their elected representatives. It is usually associated with citizen participation and democratization at the sub-national levels (Rodríguez and Ward 1994; Parker 1995). Economic decentralization is concerned with the location of economic decision-making and includes liberalizing the economy through privatization and public-private partnerships. This type of decentralization has become more prevalent with recent trends toward economic liberalization and privatization and the breakdown of command economies.

Spatial decentralization encompasses a government's attempts to achieve a more balanced pattern of urban development, reflecting regional planners' attempts to prevent or reverse high levels of concentration in metropolitan regions by strengthening and promoting economic development in the less developed regions. Spatial decentralization is closely linked to and mutually reinforcing the fourth type of decentralization, administrative decentralization. Administrative decentralization relates to the concentration or dispersal of administrative discretion, focusing on the transference of planning, management and fund-raising from the central government to subordinate

⁶ The names by which these types of decentralization are referred may vary. For example, what most authors call "economic decentralization," Cohen and Peterson (1999) refer to as "market decentralization" and others call "fiscal decentralization."

levels of government, corporations or non-governmental organizations (NGOs) (Rondinelli and Nellis 1986). It is also divided into four modes that will be discussed in the next section.

Table 1.1: Types of Decentralization

| | |
|--|---|
| Political Decentralization | Aims to give more political power for decision-making to citizens or to their elected representatives. |
| Economic Decentralization | Concerned with the location of economic decision-making. |
| Spatial Decentralization | Deals with changing the pattern of urban development and reducing the concentration of decision-making within metropolitan regions. |
| Administrative Decentralization | Focuses on the transference of planning, management and fund-raising from the central government to other entities. |

It is important to note that each of these types of decentralization overlaps and influences the others. In other words, the real world is so interconnected that it hard to fully separate these four types of decentralization. For example, in Mexico an increase in economic decentralization helped to open the door for greater political and administrative decentralization. Starting in 1989, Mexico's central government channeled substantial amounts of resources to municipal governments through the National Solidarity Program (PRONASOL) (Fox and Aranda 1996, 5). These resources allowed the municipal governments a degree of economic autonomy in addition to greater autonomy in decision-making (although still limited) and greater autonomy with planning and management of small projects.

Clearly there is overlap and multiple types of decentralization often occur at the same time. Yet, distinguishing between types of decentralization is useful because the distinctions define a perspective and, hopefully, a manner in which to better understand

the concept of decentralization. Furthermore, some types of decentralization are easier for governments to put into practice than are others. For example, it is easier for a government to create field offices, achieving spatial decentralization, than it is for a government to hand over control of money, advancing economic decentralization. Therefore, by looking at the different types of decentralization, it is possible to identify areas in which governments are willing to cede control as well as to understand which level of government is engaged in the decision-making process and how the federal government can still maintain a degree of control over policy domains despite decentralization.

That said, this work, and most decentralization literature, focuses mainly on administrative decentralization. Administrative decentralization is the broadest and relatively easiest type of decentralization to implement (Rodriguez 1997). It is usually the first step that centralized governments take toward decentralization. It is also very tied to the other three types of decentralization and thus works well to give insight to all types of decentralization in general. Administrative decentralization, the hierarchical and functional distribution of powers and functions between the central government and the state and local governments, is explored by looking at four modes, four different levels of decentralization.

Modes of Administrative Decentralization

There are four modes of administrative decentralization: deconcentration, delegation, devolution and privatization⁷ (Rondinelli 1981a; Rondinelli et al. 1984;

⁷ Some writers prefer to term privatization as de-bureaucratization, for example, see Hasan (1992).

Rodríguez and Ward 1994, 100; Rodríguez 1997). Rondinelli et al. (1984) explains the variation among modes of decentralization as the

degree of responsibility for and discretion in decision-making that is transferred by the central government [which] can vary, from simply adjusting workloads within central government organizations, to the divesting of all government responsibilities for performing a set of what were previously considered to be public sector functions (1984, 9-10).

Governments have used all four modes, simultaneously or at different times, and have shifted among modes after assessing results. The first mode, deconcentration, involves the redistribution of specified decision-making authority and financial and management responsibilities among different levels within central government ministries and agencies. It is a shifting of the workload from a centrally located ministry or agency headquarters to a subordinate administrative unit, such as a federal field office in regions, states, or localities outside of the capital city. Deconcentration imparts a minimal amount of discretion to field agents to implement programs and projects within guidelines set by the central government. Overall, deconcentration is an administrative action that does not alter the flow of command within the governmental system.

Deconcentration is generally the first mode of decentralization pursued by a centralized government. This is due to its relatively small distribution of control from the central government. In Mexico decentralization occurred in 1985 when a major earthquake accelerated the implementation of an existing program to relocate many of the central government agencies outside of the capital but where the hierarchical lines from the center were neither broken nor substantially weakened (Beltrán and Portilla 1986; Pardo 1986; Rondinelli et al. 1989; Rodríguez 1997). It is also seen in Tunisia where the country's twenty *gouvernorats* receive an annual grant from the central government to implement local employment generation and development projects--projects that have

been outlined by the central government (Nellis 1983). Deconcentration has been the most frequently used mode of decentralization in developing nations since the 1970s (Rondinelli et al. 1984).⁸

The second mode of decentralization is delegation. Delegation refers to a transfer of specified decision-making, financial and administrative responsibilities to semi-autonomous organizations. Under delegation the transfer of decision-making is not complete because ultimate responsibility remains with the central government. Delegation occurs primarily with public enterprises including energy, communications, ports and transport sectors (Silverman 1992, 1). These public enterprises are generally able to provide public services more efficiently and effectively than the centralized governmental agencies (Rodríguez 1997; Bennett 1990).

In Latin America, the central governments have delegated functions such as the provision of social services to public authorities. Mexico, in particular, has a large number of organizations and *parastatal enterprises*⁹ that operate semi-independently with general oversight from the federal government. *Parastatal enterprises* include everything from automobile factories and television channels to Mexican Petroleum (PEMEX) and the major national university, Universidad Nacional Autonoma de Mexico (Harris 1983, 186-7).

The third mode of decentralization, devolution, is the granting of local and municipal level governments the right to substantial autonomy, including the right to

⁸ Deconcentration has been used in Indonesia, Morocco, Pakistan, the Philippines, Sri Lanka, Thailand, Tunisia, Bolivia and Mexico, among other nations.

⁹ Parastatal enterprises are government owned corporations. These corporations run banks, hotels, steel mills, airlines, railroads, television stations and telephone services, among other businesses (Rondinelli et al. 1984, 17).

generate revenues¹⁰ (Rondinelli et al. 1984; Rodríguez and Ward 1994). It is usually found to be a response to state or local demands for political autonomy, as was the case in Scotland. It is seen as a satisfactory response from the central government and avoids the central government ceding total control. The activities of these devolved sub-national units of government are substantially outside the direct control of the central government so central authorities generally exercise only indirect, supervisory control. Under devolution, the sub-national units are given legally recognized geographical boundaries over which they exercise authority distinct from the central government (Rondinelli et al. 1989, 75). Furthermore, under devolution, mutually benefiting relationships between central and local governments are established allowing the local governments the ability to interact reciprocally with other units within the governmental system.¹¹ Unlike both deconcentration and delegation, devolution weakens the hierarchical lines of power (Beltrán and Portilla 1986; Pardo 1986; Rodríguez 1996).

An example of devolution is the Scottish parliament. As a compromise, instead of ceding from the UK, powers and duties exercised previously by UK Ministers were transferred to Scottish Ministers and the Scottish Executive in 1999. Thus, Scotland and the Scottish people have direct control rather than the centralized UK government.

Despite this example, in the recent past, only a small number of developing countries have decentralized through devolution. Those that did use devolution devolved specific,

¹⁰ A number of scholars argue that devolution is a concept distinct from decentralization. These scholars, suggest that devolution means “the transfer of power to geographic units of local government that lie outside the formal command structure of the central government...Thus, devolution represents the concept of separateness, of diversity of structures within the political system as a whole” (Sherwood 1969, 68). Their argument suggests that decentralization describes an *intra*-organizational pattern of power relationships and that devolution describes an *inter*-organizational pattern of power relationships.

¹¹ Uphoff and Esman (1974, xii) suggest, “local institutions which are separated and isolated from other levels are likely to be impotent developmentally...What makes the most difference are systems or networks of organizations that make local development more than an enclave phenomenon.”

residual powers and responsibilities not claimed by the central government to local governments (Rondinelli and Cheema, 1983). One of the few countries that attempted devolution is Sudan. Within Sudan provincial councils and commissioners were given responsibility for nearly every public function, excluding national security, posts and communications, foreign affairs, banking and judiciary, which were controlled by the central government (Rondinelli 1981b). Sudan was divided into administrative regions, each with a governor and regional assembly that had semi-autonomous legislative and executive responsibilities. Other countries that have attempted devolution include Papua New Guinea and Nigeria (Rondinelli and Nellis 1986).

The final mode of decentralization is privatization. Many governments privatize, transferring functions to either voluntary organizations or to private enterprises, in order to relieve themselves of responsibilities. The responsibilities are transferred to organizations: national industrial and trade associations, professional groups, religious organizations, village development organizations, political parties or cooperatives, or to privately owned or controlled enterprises (Rondinelli et al. 1984, 23). The responsibilities transferred include licensing, regulation and/or supervision of functions that were previously preformed or regulated by the central government, parastatal enterprises or public corporations.

Private voluntary organizations in Sri Lanka, for example, have come to play an important role in expanding access to services and infrastructure (Rondinelli and Nellis 1986, 9).

They run day-care centres, nursery schools, health clinics, homes for destitute children and old age homes, and provide vocational training, non-formal education, and sports and recreation programmes. They operate rural development projects and community self-help programmes that

provide social overhead capital--roads, water tanks, irrigation, canals, sanitation facilities, and wells. Many provide working capital for local, small-scale agricultural and handicraft projects, and market outlets for the goods produced in villages. These private groups either supplement or exclusively provide services offered in many other countries through government agencies (Rondinelli and Nellis 1986, 9-10).

Similar functions are performed by co-operatives and private establishments in other developing countries where needs are beyond the capacity or reach of any existing government agency. It is worth noting, however, that in many instances, the central governments continue to exercise some amount of supervision over and support for the “privatized” functions, and generally the ownership remains public. Therefore, the distinction between privatization and delegation may easily blur.¹²

Similar to the situation between delegation and privatization, often there are no clear distinctions between any of these modes of decentralization. Yet, in order to facilitate a discussion on decentralization, it is necessary to split the overarching abstraction “decentralization” into the “host of separate, occasionally conflicting entities” (Leonard 1982, 28) represented by the four modes of decentralization.

¹² Some scholars, such as Cohen and Peterson (1999), include privatization as a sub-set of delegation. The argument suggests that the central government is still divesting itself of responsibility for carrying out a specific public sector function or service, just with a non-public sector firm.

Table 1.2: Modes of Decentralization

| Deconcentration | Delegation | Devolution | Privatization |
|--|---|---|---|
| Decision-making authority and financial and management responsibilities redistributed to central government agencies and ministries. | Decision-making, financial and administrative responsibilities transferred to semi-autonomous agencies. | Sub-national levels of government, ideally including local and municipal level governments are granted the right of substantial autonomy. | Goods and services are provided by market mechanisms generally through revealed preferences of individuals. |
| Central government executes functions of supervision, control, general programming and budgeting and coordinating regional operations. | Parastatals are assigned responsibility for maintaining sector investments and implementing programs. Central government still generates revenues and maintains much control. | Parastatals elect their own officials, raise their own revenue, have their own independent expenditure authority. Given legally recognized geographical boundaries over which they exercise authority distinct from central government. | Deregulation of private sector reduces legal constraints, allowing private suppliers to compete for services that had been public monopolies. |
| Ultimate authority lies with central, federal government. | Parastatals are not fully controlled by central government, but are ultimately accountable to it. | Implies autonomy for the states and municipalities. Illustrative of a federal system. | Private organizations provide services that government cannot offer efficiently and effectively on their own although ownership often remains public. |

For most countries the process of decentralization generally began in a tentative, incremental manner, giving the government time to adjust to new distribution of responsibilities and power. The governments often focused on one issue-area where

additional agents such as employees in field offices, sub-national units or parastatal agencies were assigned specific, often routine, tasks with defined authority and limited jurisdiction (Huque 1986). However, there are also the cases where the additional agents consisted of members of other branches of the federal government. A discussion of vertical and horizontal decentralization describes the distinction between these two styles of decentralization.

Vertical and Horizontal Decentralization

As with most discourses of decentralization, this discussion has mainly emphasized the distribution of responsibilities, decision-making and power among government levels, vertical decentralization, and not government branches, horizontal decentralization. However, the possibilities for both vertical and horizontal decentralization should be acknowledged in a study looking at transformations in the process of decentralization.

Substantial change can occur with vertical decentralization, when there is an expansion in the number of people involved with a policy from a small number within one government level, to a more extensive number of people among different levels of government. Paramount with this is the pattern of intergovernmental relations that dictate the degree of dependence each tier will have on the other levels. Both federal-to-state and state-to-local power shifts are included in vertical decentralization. Vertical decentralization involves genuine autonomy, which would allow states and municipalities to undertake and fulfill their mandates. It requires clarification of duties and obligations of each level in addition to a strong financial base to support implementation. Within

Mexico, the federal government assigning responsibility for trash collection to the state and municipal governments is an example of vertical decentralization.

Substantial change can also occur when there is an expansion in the number of people involved with a policy through granting the legislative and judicial branches power to balance the power held by the executive branch. This can occur at any of the three levels of government, with the legislative and judicial branches balancing power over the president at the federal level, governor at the state level, or municipal president at the local level. Horizontal decentralization creates checks and balances to regulate the separation of powers instead of the sharing of power among the three branches of government. This prevents rubber-stamping and prevents one branch of the government from controlling another. For example, when the federal legislature is given the power to over-ride the executive's veto of a policy issue, there is horizontal decentralization. This study looks at both vertical decentralization and horizontal decentralization within Mexican environmental policy.

Determinants of Decentralization

Moving past the types and modes of decentralization, scholars often look at what factors impact the process of decentralization—determinants of decentralization. Three groups of variables, political, economic and social, have been used to explain the move to decentralize. For example, Klijn and Teisman (1997) discuss how a county's political system provides the framework in which organizations function and in which policies, including decentralization, are carried out; Eaton (1998) considers how different electoral incentives affect a politician's decision to decentralize and Rodríguez (1998) discusses

the role presidential power can have in decentralization; Bahl and Linn (1994) argue that gains from decentralization vary with a country's level of economic development; and Wallis and Oates (1988) incorporate measures of ethnic diversity as a predictor of decentralization.

When forming a framework within which to combine these variables, much of this literature takes an analytical look at the decentralization process, stressing the technical-administrative aspects as critical to effective decentralization. A 1986 article by Rondinelli and Nellis exemplifies this analytical look at decentralization. These authors note that it is relatively easy to formulate and initiate decentralization programs, but it is difficult to carry them out effectively. Thus, determinants for effective decentralization include sufficient central support, conducive dominant behavior, attitudes and culture, appropriate design, and adequate resources (Rondinelli and Nellis 1986, 15). In this early technical-administrative literature, emphasis is placed on the central government, with little said about traits and capabilities required from the state or local governments. Furthermore, this literature is criticized for putting too much importance in neo-Liberal concerns about efficiencies, and not sufficiently addressing politics, authority, social struggles and state power (Slater 1989; Samoff 1990; Pineda-Pablos 1999, Cohen and Peterson 1999).

More recently, a number of scholars have attempted to address some of the critiques of the technical-administrative analysis of decentralization. Rondinelli (1990) engages the critiques, suggesting his work is more inclusive than the critics suggest. Silverman (1992) works with technical-administrative analysis and adds to it, addressing the need to survey the administrative facilities of all organizations/institutions involved.

In a similar fashion, Rodríguez (1993, 1997) explores the apparent paradox that “to retain power you must give it away, or at least *appear* to give it away” (1997, 3), and attempts to pay adequate attention to politics. Rodríguez shows that decentralization is not simply the result of sterile technical designs made by central offices, but also is also impacted by governmental crises and political struggles among diverse units of government in addition to actions taken by the civil society. In this view, decentralization is not a goal in and of itself, but a means for achieving or increasing stability, governance, legitimacy and other political objectives. Rodríguez attempts to address both vertical and horizontal decentralization.

Most recently Cohen and Peterson (1999) modify the technical-administrative analysis, following Rodríguez’ lead, expanding it beyond the technical and administrative. Cohen and Peterson focus “on the role of relationships among central governmental, non-central governmental, and private sector institutions and organizations relative to a given public sector task” rather than the “spatial relationships of structures” (1999, 73). In other words, these scholars add the possibility of institutional pluralism, a sharing of responsibilities among various government levels and private organizations.

Each of these scholars has furthered the discussion of a framework within which to study decentralization. Although many of their points are insightful, a key determinant of decentralization the revisionists have brought to light, yet not fully developed, is the importance of political and administrative capacity building, particularly at the sub-national level. Implementation of decentralization necessitates having the capacity—such as the funding or personnel—to fulfill responsibilities.

Capacity Building and Decentralization

Capacity defines the objective limits to and necessary preconditions of successful solutions for a given problem or project. Capacity building points to the limitations beyond which failure is nearly inevitable (Janicke 1997; Franks 1999). These concepts are important within the study of decentralization because they clarify specific elements needed by local and/or state governments and/or other groups to facilitate the process of decentralization. For example without, technological knowledge or monetary resources it is difficult or impossible to successfully implement decentralization projects. Likewise, the weakness of ecological institutions in relation to vested interests is a well-documented limitation that severely impedes the decentralization of environmental policy and management (Rondinelli and Nellis 1986; Cohen and Peterson 1999).

Although there is some decentralization literature that deals with capacity building, it is generally used to talk about limits in financial resources and qualified personnel on the part of the state and municipal governments (Rondinelli and Nellis 1986, 16; Fox and Aranda 1996). However, capacity building includes more than simply fiscal resources and qualified personnel. It includes a number of elements important for moving past limitations, and can be applied to many issue-areas including decentralization.

A 1991 conference in Delft (Alaerts et al. 1997) identified three elements that are now generally¹³ accepted as the core factors in capacity building include. These are:

1. the creation of an enabling environment, with appropriate policy and legal frameworks;
2. human resource development and the strengthening of managerial systems;

¹³ Works by numerous authors discuss a similar set of elements for capacity building. See for example, Grindle 1997b.

3. institutional development, including community participation (Franks 1999, 52).

The first of these elements incorporates the frameworks necessary to have effective planning and management. Clearly stated policies on control, responsibilities and financing create the first component of capacity building to have decentralization. Additionally the enabling environment also describes the surroundings that make it physically possible to have interaction and thus any type of capacity building. The second element of capacity building points to the role of human capital, technical expertise, workable attitudes and functional skills. Without knowledgeable, trained personnel to run programs, it would be impossible to successfully implement programs. Thus, these aspects are needed not only for a central government to deem a state or municipal government as “fit” to manage a decentralized project, but also for the project to be maintained.

Finally, the third element emphasizes the need to constantly update the organizational entities that impact environmental policies and procedures. This includes not only technologies and structures, but also networks for participation, particularly community participation. By including community participation, this element promotes the conventional wisdom that community involvement is vital for successful decentralized programs.¹⁴ In sum, for successful capacity building, it is necessary to have a combination of these elements: laws permitting and defining the scope of decentralization, trained personnel to implement decentralization, and monetary resources

¹⁴ In particular, international organizations such as the World Bank emphasize public participation. According to the World Bank (1997, 116) heightened public participation (from non-governmental organizations and citizens) can help fill gaps in supply of public good that are either not met or not anticipated, allows citizens to express their voices within the framework of the law, forcing accountability and granting credibility to governments, and often increases information sources, keeping public officials abreast of problems and concerns.

to support decentralization. Additionally, depending on the issue at hand, how people react to it, and how much attention is given to the issues, there will be varying levels of capacity building applied. For example, when dealing with an issue that is a basic necessity, it is more likely that capacity building will advance more quickly than with an issue that is not viewed as a necessity. Finally, it is also useful to recognize the importance of, not only capacity, but ongoing capacity building because, “in some cases existing capacity is rendered irrelevant or made inadequate by the emergence of new challenges, and awareness of these challenges has grown faster than the ability of many institutions to solve them” thus organizations and agencies must be constantly “updating” their capacity (OECD 1994, 11).

Understanding these elements of capacity building allows for a more complete evaluation of the existence of capacity/capacity building within the governments or organizations attempting to deal with decentralized programs and policies. Furthermore, the concept of capacity building is useful in explaining possibilities with environmental and water policies and programs and as a tool for comparison among the elements between countries and/or states. Thus, in order to increase society’s “ability ... to devise and implement solutions to environmental issues as part of a wider effort to achieve sustainable development, work has been done to understand capacity building as it applies to environmental issues” (OECD 1994, 8). The next section of this chapter takes the discussion of decentralization and combines it with the environmental issues and policy.

Decentralization of Environmental Policy: The Scholarly Debate

Within the environmental arena there is a discussion of the advantages and disadvantages of centralization-decentralization. Authors such as Bookchin (1988, 1990), Paehlke (1989), and Daly and Cobb (1994) suggest that decentralization helps to avoid hierarchical structures and domination, provides citizens with the feeling of greater control and allows more openings for new ideas and insights. Furthermore, Ostrom's (1990, 1995) discussion of institutional governance of common property resources suggests that local governance has extensive local knowledge, an understanding of the structure of incentives, knowledge of the types of individuals who will interact, and insight into the prerequisite relationships necessary to sustain natural resources. Warren (1992), McLaughlin (1993), and Press (1994) suggest decentralization gives people and communities a sense of ownership that compels them to be more responsible and active citizens.

Conversely, authors such as Hardin (1968, 1978) argue that without control there will be a "tragedy of the commons." Without a controlling force giving structure, degradation of the environment is to be expected whenever many individuals use a scarce resource in common. Heilbroner (1974, 1980) advocates the necessity of "iron governments" to achieve control over ecological problems. Carruthers and Stoner (1981) assert that centralized public control is essential to avoid vast degradation to natural resources systems, including soil erosion and over-fishing, and to maintain economic efficiency. Ophuls (1973) and Ophuls and Boyan (1992) opine that environmental problems cannot be solved through cooperation but may be solved through the coercive

power of government. And Bramwell (1994) and Dobson (1995) advocate the necessity of a powerful central authority to enforce environmental programs and legislation.

In this debate, centralists generally view most people as egoistic utility-maximizers likely to be free riders in common property resource management. Centralists believe that “in a future environmental crisis, most people would want strong leadership and fast, comprehensive results, because citizens would be either apathetic or cynical about their own effectiveness at solving environmental problems” (Press 1994, 29).

On the other hand, the decentralists believe that as public participation in policy issues expands, people become better citizens, better at problem solving and better at taking responsibility for their actions (Warren, 1992). Therefore, according to decentralists, local control over environmental management results in more desirable environmental outcomes than does central control (particularly federal). This is because those being directly impacted are more likely to take responsibility to improve a given situation.

Centralists emphasize that a fundamental problem with decentralist assertions is that decentralists exaggerate people’s ability to make meaningful and reasoned decisions on technically complex matters. Conversely, the decentralists argue that the centralists have “underplayed the sinister, secretive tendencies of a ruling cadre of technocratic elites” and used technical complexity to block or negate public participation on environmental issues (Press 1994, 100).

This debate¹⁵ continues, although in reality many scholars do not completely support one side. In fact most centralists and decentralists alike believe that, theoretically, successful local environmental policy control is most desirable. However, both groups also admit that it is not always a real option and that it depends on the issue being addressed. For example, many environmental activists, legislators, and legislative staff suggest that increased local participation and control within the toxics debate will result in better environmental outcomes, however these same individuals propose just the opposite when it comes to forestry (Press 1994, 84). Overall, decentralists emphasize the areas that would benefit from increased participation while centralists draw attention to the areas that benefit from a unified policy controlled by a small number of actors.

Although neither group is always correct, the recent trend in this discussion seems to be leaning toward increasing decentralization. Exemplifying this tendency is the fact that international banks, such as the World Bank, now have departments devoted specifically to studying and developing decentralization programs—particularly for developing nations. Furthermore, more and more developing countries are including the concept of greater decentralization as a part of their development plans. This is just the case in Mexico, which has stated decentralization as a goal since the early 1980s.

Why are developing countries such as Mexico inclined to move toward greater decentralization? Although pressure from international institutions could be part of the answer, the benefits that decentralization brings to the countries—as studied by the international institutions and understood by the countries themselves—must also play a role in the decisions to decentralize. In order to understand the benefits of decentralizing policies, such as environmental policies, in a country like Mexico, it is first necessary to

¹⁵ For a well-developed discussion on the debate, see Press (1994).

look at the environmental and water policy literature that exists. The following section attempts to present this brief literature review.

Literature on Mexico's Environmental and Water Policy Issues

Environmental policy on the U.S.-Mexico border is a particularly pertinent issue. Although environmental issues along the U.S.-Mexico border have recently begun to draw more attention and thus increasing amounts of research, since the 1940s there has been a steady, although originally limited, number of scholars who have focused on environmental concerns within the region.

Literature on Water along the U.S.-Mexico Border

Literature dealing with the U.S.-Mexico border region environment covers a vast variety of issues, however due to the fact that the most definitive characteristic along the borderlands is the lack of water, a substantial amount of the literature concerning the border region focuses on water issues and conditions. In 1936 Timm published an article "Some Observations on the Nature and Work of the International Boundary Commission, United States and Mexico."

Beginning in the 1960s much of the border water literature focused on the conflict between Mexico and the U.S. surrounding agricultural use of water, particularly Colorado River and Rio Grande/Rio Bravo water, and the legislation and management attempts to work through the conflicts. Ground-breaking examples of this include Hundley's (1968) *Dividing the Waters: A Century of Controversy Between the United States and Mexico* and Day's (1970) book *Managing the Lower Rio Grande*, both which deal with problems

of shared river basins. Other important works include Anderson's (1972) "A History and Interpretation of the Water Treaty of 1944," Coyro's (1975) two volume work *El Tratado entre México y los Estados Unidos de América sobre Ríos Internacionales: Una Lucha Nacional de Noventa Años*, Brownell and Eaton's (1975) "The Colorado River Salinity Problem with Mexico" and LeMarquand's (1977) *International Rivers: The Politics of Cooperation*. Each of these compositions revealed the importance of the U.S. and Mexico working together to deal with bi-national water issues, the efforts on both sides of the border to work towards cooperation, and some of the inequalities within the agreements between the two nations.

By 1977 another shift in literature on borderland water was beginning. Anderson combined forces with Keith to produce their 1977 article "Energy and the Colorado River." This article moved beyond an agricultural focus, discussing both agricultural and energy uses of the Colorado River, and associated water quality and quantity problems. This article is representative of the changes taking place within the border region in the late 1970s: population growth and associated urban and industrial water uses competing with agricultural water uses. Other compositions within this era include books by López Zamorra's (1977), *El Agua, La Tierra: Los Hombres de México*, which describes essential historical moments in the development of water management in Mexico; Busch (1978) addressing the international pollution problems, population growth, and complications stemming from multiple levels of jurisdiction and, in 1979, the release of Jamail and Ullery's "International Water Use Relations Along the Sonoran Desert Borderlands." This later work directly addresses rapid urbanization along the border, along with accompanying demands from municipal and industrial water users and

the changes being forced upon agricultural users. Using case studies, these authors addressed the issues of water supply, water quality, wastewater, and pollution parameters inherent in the borderland situation.

This is also the decade that saw the creation of Mexico's National Water Law (Ley de Aguas Nacionales) and the recognition that it is necessary to address water sources other than river water. In 1978 Utton published "International Groundwater Management: The Case of the U.S.-Mexican Frontier," and Bradley and DeCook published "Groundwater Occurrence and Utilization in the Arizona-Sonora Border Region." The first article explores the inadequacy of laws and institutions pertaining to the management of groundwater resources along the U.S.-Mexico border, the ensuing "chaotic situation" and management alternatives for improvement. The second article looks at population growth and expansion of agricultural production along the border and the increased pressure on both surface and groundwater. This article also addressed the lack of international agreement governing groundwater use. Both of these articles address the necessity of water within the region.

Continuing in the more encompassing view but adding a greater number of publications coming from Mexico, the 1980s saw literature such as Oyarzabel's (1982) "Comentarios a las Instituciones que Reglamentan las Aguas Superficiales de Mexico" and "La Calidad de los Aguas del Bajo Rio Bravo," Sepulveda's (1982) "Los Recursos Hidráulicos en la Zona Fronteriza México-Estados Unidos Perspectiva de la Problemática Hacia el Año 2000—Algunas Recomendaciones," and Valdes' (1982) "De Aguas Subterráneas en la Región de Juárez-El Paso." Publications from U.S. scholars

include Eaton and Andersen's (1987) *The State of the Rio Grande/Río Bravo: A Study of Water Resource Issues Along the Texas/Mexico Border*.

The 1980s also saw the beginnings of greater regionalism within Mexico. Mexico's federal government had begun to promote moving industry and government offices from Mexico City into the periphery. This move, taken to help with congestion in Mexico City, was absorbed by the population and was reflected in the scholarly works produced during the 1980s. For example, a substantial number of the aforementioned works suggest that locals within the border region have a better understanding of environmental and water conditions within their region than do government officials based in Mexico City. Thus, suggestions for greater local and regional decision-making were proposed.

By the 1990s, literature concerning water along the U.S.-Mexico border began to take a more inclusive view, emphasizing the necessity of water for the people along the border, and thus including public participation and representatives and opinions from both the U.S. and Mexico in national and international decision-making. The works from this time also began making a concerted effort to discuss bi-national institutions such as the International Boundary and Water Commission (IBWC). Works representative of this trend include Mumme and Moore (1990) "Agency Autonomy in Transboundary Resource Management: the United States Section of the International Boundary and Water Commission, United States and Mexico," Eaton and Hurlbut (1992) *Challenges in the Binational Management of Water Resources in the Rio Grande/Río Bravo* and Sánchez' (1993) article "Public participation and the IBWC: Challenges and Options," the later two of which give a substantial amount of discussion to the opinions and desires

of the locals living in the border region. The book *Divided Waters: bridging the U.S.-Mexico Border* (Ingram et al. 1995) explained the nature of water development and utilization within Nogales, Sonora-Nogales, Arizona, describing the social, economic, political and institutional problems that obscure effective management of water resources. Their conclusions suggest a need for greater integration and increased public participation and local decision-making for managing water resources.

The later 1990s work shows a trend in looking toward the future: projections for future use of water, lessons taken from the past that could be applied to future water management, and sustainable development. Articles such as Milich and Varady (1998) “Managing Transboundary Resources: Lessons from River-Basin Accords,” and Mumme (1998b) “Water Management for Sustainable Development in Hermosillo: Legal, Administrative, and Political Challenges,” in addition to Pindea Pablos (1998) edited volume *Hermosillo y el agua: Infraestructura hidráulica, servicios urbanos y desarrollo sostenible*, reflect this trend.

Finally, work in the late 1990s and 2000, reflect changes in institutional structures, “Consejos de Cuencas: An Institutional Option for Transboundary Water Management on the U.S.-Mexico Border” (Brown and Mumme 1999) discusses the development of regional water councils that put increasing levels of decision-making power into the hands of citizens within the region. “Public participation in the BECC: Lessons from the Acuaférico Project, Nogales, Sonora” explores how the international Border Environmental Cooperation Commission affects policymaking and public participation within the border region, including the changing relationships between local social movements and state-led (Mello Lemos and Luna 1999). And Margaret Wilder’s

(2000) article “Border Farmers, Water Contamination, and the NAAEC Environmental Side Accord to NAFTA” examines small farmers’ social mobilization strategies to approach the Mexican state, in light of the Commission on Environmental Cooperation. Literature from the late 1990s and 2000 indicates changes to political institutions, increasing levels of local influence on environmental and water policy decisions, and greater local access to top government officials.

Literature on Mexico’s Environmental Policy Issues

Literature that does not specifically focus on water in the border region, but instead addresses the more inclusive concept of Mexico’s environment in general, has also gone through a development process. Developing in parallel to work on water, environmental publications really took off in the 1980s following the more inclusive, more issue expansive trend set by publications on water. However, a few works such as the edited volume, *Pollution and International Boundaries: United States-Mexican Environmental Problems* by Utton (1973), Applegate and Bath’s (1978) “Air Pollution Along the United States-Mexico Border with Emphasis on the El Paso-Ciudad Juarez-Las Cruces Air Shed,” and Applegate’s (1979) *Environmental Problems of the Borderlands* brought to light the variety of water, air and soil pollution concerns and were published prior to the 1980s. These were the beginnings of what would become a much more expansive group of researchers looking at environmental issues within Mexico.

Works focusing on population growth, agriculture and environmental conditions include Sanderson (1986) *The Transformation of Mexican Agriculture: International Structure and the Politics of Rural Change*, Wright (1991) *The Death of Ramon*

Gonzalez: *The Modern Agricultural Dilemma*, and Barry (1995) *Zapata's Revenge: Free Trade and the Farm Crisis in Mexico*. These books not only discuss the lack of water, but also explore issues such as pesticides and landscape changes caused by more extensive farming techniques. They represent a post-oil discovery trend¹⁶ within Mexico toward greater environmental awareness.

The later 1980s and 1990s also saw a fair number of works on urbanization, environmental conditions, and sustainability for the future: Herzog (1990) *Where North Meets South: Cities, Space, and Politics on the U.S.-Mexico Border*, and Pezzoli (1998) *Human Settlements and Planning for Ecological Sustainability: The Case of Mexico City*. Furthermore, similar to the literature on water, in the 1990s publications on Mexican environmental concerns began to include the issue of public participation. *Popular Movements and Political Change in Mexico* by Foweraker and Craig (1990) and Zabin's (1997) piece "Nongovernmental Organizations in Mexico's Northern Border" focused on public participation through social movements and non-governmental organizations.

Literature at this time focusing directly on environmental conditions along the U.S.-Mexico border, included a collection of publications exploring *maquiladora's* exploitation and pollution of natural resource: "Health and Environmental Risks of Maquiladora in Mexicali" (Sanchez 1990) and "Structural Determinants of Sustainability in the *Maquiladora* Industry on Mexico's Northern Border" (Montalvo Corral, 2000), and publications looking at sustainability along the border region: *Transparency, Local Control and Binational Cooperation: Adding Conditions of Sustainability to the*

¹⁶ After the discovery of oil in Mexico, as more of the country's basic necessities were met and more people were driving, people began to recognize air and water pollution problems. This led to a trend among scholars and activists to push for greater recognition of environmental conditions.

Proposed North American Free Trade Agreement (Gregory 1991), *The U.S.-Mexican Border Environment: A Road Map to a Sustainable 2020* (Ganster, ed. 2000), *Shared Space: Rethinking the U.S.-Mexico Border Environment* (Herzog, ed. 2000). In addition, there is also work that explores the legal and institutional aspects surrounding environmental concerns and conditions along the border. Before the passage of NAFTA in 1994, this work included Sanchez Rodriguez' (1988) *Conflictos ambientales y negociacion binacional entre Mexico y Estados Unidos*, McIntosh's (1991) "Doing Business in Mexico: the Evolving Legal Framework (Environmental Considerations Regarding Waste Disposal)" and Szekely's (1993) "Emerging Boundary Environmental Challenges and Institutional Issues: Mexico and the United States." After the passage of NAFTA, the work on legal and institutional issues turns toward the bi-national institutions and other legal arrangements that have stemmed from NAFTA and its side-accords.

The publications on bi-national institutions and commissions include pieces on the basics of NAFTA's environmental impacts: Mumme (1994, 1996) "The North American Free Trade Agreement: The Environmental Side Agreement and the Parallel Bilateral Border Accords" and "Environmental Management on the Mexico-United States Border: NAFTA and the Emerging Bilateral Regime," and Johnson and Beaulieu (1996) *The Environment and NAFTA: Understanding and Implementing the New Continental Law*. This group also includes publications by the NAFTA institutions describing and critiquing themselves.

Another group of literature has focused on analyzing the progress of the Border XXI, CEC, NADBank and BECC: *NAFTA's Broken Promises: the Border Betrayed:*

U.S.-Mexico Border Environment and Health Decline in NAFTA's First Two Years (Public Citizen 1996), "The U.S.-Mexican Border Environment Cooperation Commission: Collected Perspectives on the First Two Years" (Varady et al. 1997), Spalding and Audley (1997), *Promising Potential for the U.S.-Mexico Border and for the Future: An Assessment of the BECC/NADBank Institutions*.

And a final collection of work has delved into the public's reaction to the environmental changes occurring since the passage of NAFTA. Included in this group are works such as "Environmental Issues Along the U.S.-Mexico Border: Drivers of Change and Responses of Citizens and Institutions" (Liverman et al. 1999) and "Public Assessments Regarding the Performance of the Border Environment Cooperation Commission (BECC) and North American Development Bank (NADB): A Survey Conducted by the Border Information and Outreach Service" (Border Information and Outreach Service, 2001).

This survey of the literature reveals that there are some parallel movements between scholarly work on water and on the environment within the U.S.-Mexico border region. Central themes include a progression from recognizing exploitation of natural resources to increased environmental awareness and finally to greater public participation and institutional changes that recognize the need for protection. More specific themes include the affects of rapid population growth and urbanization, recognition the national and international institutional changes impacting water and environmental policy decision-making, and more recent acceptance of public participation as a part of policy formation.

That said it is also important to mention some differences between the water and environmental literature reviews. Most notable is literature's extensive focus on water. Although there is a growing number of scholarly works on environmental concerns, writing on water came first and weighs heavily within the border region. This trend is most likely due to the fact that water is seen as a basic necessity while the environment brings to mind more preservationist actions, thus water policy is driven by basic needs, even water quality problems, and environmental policy is driven by regulatory concerns. This trend appears to form how the resources are discussed and what opportunities exist for development of ideas and concerns of the issue areas. Overall, the water and environmental sectors are politically and administratively different.

Literature on Institutional Changes in Water and Environmental Policy

Finally, there are some very important pieces of research on environmental and/or water policy and that are closely related to the topic of this project. These include recent dissertations by Pineda-Pablos (1999), on municipalization and privatization of water supply services in Mexico; Carter (1999) looking at performance of drinking water and wastewater assistance programs for the U.S.-Mexico border region; and Michel (2000), developing a geographical analysis of water quality politics in the Tijuana-San Diego metropolitan Region. Other significant work includes Vivienne Bennett's inquiries (1989, 1995) into urban water services, federal, state, and local politics, and social conflict surrounding the water crisis that occurred in Monterrey, Mexico in the 1970s and 1980s; and the studies of Jose Esteban Castro (1995) on decentralization and management of water services in Mexico. The work of Ingram et al. (1995) on water

issues in the borderlands region; an edited volume on water issues in Hermosillo (Pineda-Pablos, 1998); and Mumme's (1998a, 1998b, 1998c) works on environmental and water policy in Mexico also fall within this category. Finally, a forthcoming piece by Rap, Wester and Nereida Pérez-Prado discusses irrigation reforms and the decentralized-centralized-decentralized changes in the policies controlling the irrigation systems. These studies address the environmental and water issues from the regional or community point of view and focus on conflict, struggles, management, and policy aspects. They provide valuable introductory insights and information about the decentralization of environmental and water policy in Mexico.

In spite of the aforementioned literature, works are scarce concerning northern Mexico's efforts to promote decentralization of environmental and water policies. This is particularly true when concerning enhanced formal powers, constraints to states' capacity for developing and implementing environmental policies, and capacity building for efficient decentralized environmental policies at the municipal level. There is only one systematic, multi-state comparison available on these topics, the Environmental Law Institute's (ELI) *Decentralization of Environmental Protection in Mexico: An Overview of State and Local Laws and Institutions*. The ELI's six-state comparison is strictly a survey of legal norms, state by state, and does not provide information on state implementation or a systematic comparison of state regulatory performance.

Recognizing the dearth of information addressing decentralization of environmental and water policies in Mexico, and in particular within the more environmentally advanced northern states, this project attempts to undertake an examination of these decentralization issues. In order to attempt to fill in these gaps in

the literature, it is first necessary to understand the general decentralization process in that country.

The next chapter begins by exploring the process of decentralization in Mexico. It then moves on to a discussion of Mexico's framework for environmental and water decentralization and the agencies involved with environmental and water policies. The next chapter suggests that capacity building can play an integral role in these processes of decentralization.

Chapter 2: Mexico's Formal Decentralization

The Process of Decentralization in Mexico

Mexico's government is set up with both vertical and horizontal separation. Vertically it is officially recognized as a federal system¹⁷ with checks and balances among federal, state and local governments. State and local governments have jurisdiction over matters concerning their internal affairs, while the federal government maintains jurisdiction over matters that are national in scope or of interest to the nation as a whole. Horizontally, Mexico's government is comprised of three autonomous branches of government: executive, legislative, and judicial. Each branch has its own responsibilities and formally has some forms of checks and balances over the other branches. In contrast to these formal structures, in practice Mexico's government decision-making has not traditionally exemplified either vertical or horizontal separation. Decision-making has been highly centralized where the federal executive had almost unrestrained authority over the legislative and judicial branches and over the lower levels of government. The traditional domination of the federal executive made state governors dependent on the President and placed the *municipios* at the bottom of the hierarchical structure. Within the past few years this actual situation has begun to more closely resemble the formal structure, spreading more power both vertically and horizontally.

Since the Revolution of 1910 Mexico's power has become increasingly concentrated in the federal executive branch, most specifically within the hands of the

¹⁷ Federalism is a political arrangement that combines sub-national government autonomy with national integration.

President. At the time of the Mexican Revolution, unification of the country through centralization was seen as necessary (Borja, 1992). It allowed Mexico to regain control of its resources and expand infrastructure and development. In addition, centralization gave the federal government the ability to control conflicts among its peoples, especially the local and regional *caudillos* and avoided the disintegration of the newly created national institutions (Graham 1990).

After the Revolution of 1910 a new political and economic system was established that furthered centralized power. A series of institutions including the political party that became the Partido Revolucionario Institucional's (PRI) (Institutional Revolutionary Party) were created to counteract the power of local and regional *caudillos*. The PRI's leaders, in particular, became skilled at running the party as a mechanism that brandished a substantial amount of power. Among the policies that added to PRI control, and strengthened centralization, was the post WWII trend away from traditional agriculture. The move to subsidize the private sector, large-scale agriculture projects and shift rural peasants toward industrial-type work made both sectors more dependent upon the central, PRI-led government (Yates 1981, 251; Sanderson 1986, 250-4). The private sector had greater financial dependence on the federal government and the peasants were less likely to be self sufficient and more likely to rely on government programs. This also set the stage for greater cooptation of both of these groups by the central government. Similar policies were created to co-opt other groups.

This type of federal government control was the basis for Mexico's *nested fail-safe system* where if the state is incapable, then jurisdiction passes to the federal level.

This also supported the trend that, despite Mexico's federal system, unless otherwise constitutionally specified or explicitly delegated, state and local legislation and administration remain subsidiary to federal legislation and administration. Finally, this type of control was also replicated at the state-local level. The *municipios* within Mexico do not have their own laws and statutes that define the basic characteristics and responsibilities of their local government. Instead the state's Constitution and *Ley Organica* define the characteristics for the local governments, indicating that just as the states are dependent upon the federal government, the local governments are dependent and subjugated to the state government.

These centralizing policies remained intact until the 1980s, when a series of crises turned the focus to one of greater decentralization. Beginning with the collapse in oil prices in the early 1980s and continuing with economic hardships and popular political movements, Mexico's federal government was no longer able to fund all of its programs (Rodríguez 1997, 42). Following these events and in light of massive foreign debt and related economic problems, in the 1980s the Mexican government found itself in a position that required greater emphasis on economics and efficiency. At this time decentralization became a critical element of discussion in Mexican politics¹⁸. The results of these changes were a paring down of the federal government and transference of responsibilities to states and *municipios* (Graham 1990). Consequently, state and local governments were granted a greater voice in policy issues, however there was not a

¹⁸ Although not extensive, there was some movement towards decentralization before this time. For example, President Lopez Portillo's (1976-1982) administrative reforms included the development of a system of grant-in-aid programs known as Convenios Unicos de Coordinación (CUC), Programas Integrales de Desarrollo Regional (PIDER), and Comités de Promoción del Desarrollo (COPRODE). The designation of these particular programs changed under the de la Madrid administration, although some of the substance remained in effect.

parallel transference of fiscal resources to sub-national governments. Mexico's central government had created an image of greater decentralization, yet a reality where the state and local governments were unable to support their new responsibilities.

Since that time the Mexican government has followed a familiar pattern: attempting to improve its credibility by experimenting with the reallocation of power to state and municipal levels of government and more recently with encouraging greater public participation, while sustaining as much power as possible through maintaining fiscal control. The four most recent Mexican administrations, Miguel de la Madrid, Carlos Salinas de Gortari, Ernesto Zedillo Ponce de Leon, and the current Vicente Fox Quesada administrations have declared decentralizing the administration of public programs an official priority of the Mexican government. These administrations demonstrated their support for decentralization, focusing mainly on vertical decentralization, with a number of federal constitutional and legislative changes.

The De la Madrid Administration

The Municipal Reform of 1983 under President de la Madrid represented a genuine effort to deal with Mexico's over-centralization. This reform amended Article 115 of the constitution and created the legal basis for increasing the municipal autonomy already guaranteed in the constitution.¹⁹ Despite these efforts, there were a number of severe problems with these early decentralization initiatives, including local governments limited financial and administrative capacity to deal with their new policy

¹⁹ Key amendments of the municipal reform give municipalities autonomy in managing their finances and in designing their own rules of governance (Section II); designate which services the municipalities are required to provide (Section III); and grant the municipal governments all revenues collected through property taxation and the payments for public services (Section IV). Specific functions reserved for local governments include water and sewer service.

responsibilities. This led to the *de facto* performance of these functions by state or federal governments. Overall most decentralization initiatives failed to reach past the state (Harris 1983; Rodríguez 1992; Rodríguez and Ward 1994; Shirk 1999).

Additionally, the majority involved deconcentration, shifting authority from the federal center to federal delegations in major regional centers, or occasionally delegation, passing authority to the states themselves. The De la Madrid government did not transfer sufficient amounts of power—generally precluding the transference of fiscal resources—in order to achieve devolution. A brief description of the two most widely publicized decentralization programs under the De la Madrid administration, those involving education and health²⁰, reveals reasons behind the lack of transference of power to the state and local levels.

De la Madrid's education decentralization program was designed to transfer responsibility, materials, and financial resources for elementary education and teaching training to the states, while the federal government maintained and provided the framework for administration of federal and state educational services. This decentralization program was portrayed as an effort to increase administrative efficiency through better understanding of local needs. However, it has become clear that there were also political considerations behind this decentralization program. The government's main educational institution for teachers (the Escuela Normal Superior de México) had become politicized and apparently indoctrinated their trainees with anti-government sentiment (Rodríguez 1997, 70). The federal government wanted to weaken the institution's national structure and primacy as a locus for teachers training for public

²⁰ For more information on these two programs see, for example, Reyes (1986), Jeannetti Dávila (1986).

education. The federal government believed decentralization away from Mexico City and thus away from the institution would achieve this goal. Unsurprisingly, the education decentralization program was not widely well-received and met strong opposition from the teachers union. Thus by the end of Madrid's term, the education decentralization program had yet to be implemented. It was left to the incoming Salinas administration, and particularly Salinas' Education Secretary, Ernesto Zedillo, to implement decentralization of the educational system.

De la Madrid's decentralization program for the health sector did marginally better than the education program, although the final analysis was not as successful as hoped (Rodriguez 1997). What the decentralization program for the health sector did achieve was the reorganization of the Ministry of Health and the enactment of the Ley General de Salud (General Health Law) that decreed all health services would be provided by the states. It also stipulated that services provided by the IMSS-COPLAMAR (Social Security) community participation program would be transferred to the states. Initial changes, which included nearly half of Mexico's states signing agreements, were considered substantial progress toward decentralization, however over time advancement slowed. By the end of de la Madrid's term only fourteen states had effectively decentralized health services (González Block et al. 1989).

The Salinas Administration

Following De la Madrid, the Salinas administration continued the Municipal Reform programs with the *Programa Nacional de Solidaridad* (PRONASOL) (National Solidarity Program), a controversial social-welfare program stressing community

participation.²¹ Within this program funds were allocated “directly” to the municipalities, albeit with the federal government acting in an “advisory capacity.” This advisory capacity, as noted by Bailey (1994), actually increased centralized power and presidential control by placing political limitations on the decentralization process, and promoting and supporting decentralization only long as it contributed to the political goals of the center. Furthermore, by 1992 this highly discretionary program had become the largest source of funding for most *municipios*, revealing the extent to which the central government had control. Finally, under PRONASOL when decentralization brought undesirable change, e.g., when a sub-national government’s interests challenged the federal government’s interests, decentralization was often disregarded (Parker 1995, 27).

A second example of decentralization under Salinas is the Municipal Solidarity Funds (MSF) program in the state of Oaxaca.²² This program was designed to devolve local project decision-making to the municipal and community levels, with the specific goal of carrying out small public works projects to improve living conditions and increase the incomes of those who live in low-productivity areas and marginal urban neighborhoods. Locals saw the MSF project as positive—the majority of the fiscal resources were handled by municipalities that developed projects more productive and communally satisfying than past federal projects. International development personnel deem the impact of the project successful not due to the immediate impacts achieved

²¹ For a general description and assessment of PRONASOL, see Dresser (1991), Ward (1993), Cornelius et al. (1993).

²² Fox and Aranda (1996) discuss this program in detail.

through the project funds, but rather due to the long-run impact of developing the capacity of municipalities to respond to needs within their communities.

Despite the apparent success, there are many questions about the intentions of the MFS program. For example, the program did not bring about change in the relationship between state and municipal governments. Oaxaca's state government did not encourage increased municipal autonomy nor develop the institutional capacity of municipalities to manage their own affairs (Parker 1995, 41). Furthermore, some people claim the small size of the grant shows that it is not a true move toward decentralization, but rather simply a tactic to improve the image of the PRI and to quiet complaints from peasants. Furthermore, the federal government still has the last word in approving even small local projects. This led critics to allege that there was not a real transfer of fiscal autonomy, particularly to the local level.

Overall Salinas' decentralization programs and actions failed to loosen much central control, and raise doubts about the true purposes underlying the creation of these decentralization programs. Additionally, skeptics of Salinas' programs question whether a federally sponsored decentralization policy could be consistently applied throughout the country. They doubt the transferability of decentralization programs to diverse Mexican regions with varying characteristics.²³

Despite all the questions surrounding Salinas' intentions towards decentralization, one last action taken by Salinas did contribute to vertical decentralization. Salinas substantially reduced the prerogatives of future Presidents within important sectors of the economy by transferring some economic decision-making into the hands of private

²³ Fox and Aranda (1996) discuss how success of the MSF may be limited to Oaxaca due to a number of structural characteristics that exist solely within Oaxaca.

enterprise. With this move, Salinas removed power from the central government and thus encouraged decentralization.

The Zedillo Administration

The Zedillo administration took decentralization efforts farther than previous administrations—addressing both vertical and horizontal decentralization. Faced with severe financial deficits, decreasing levels of exports, rising prices of energy and diminishing foreign assistance, the central government regarded decentralization as an optimal strategy to use limited resources more effectively. Zedillo's program for decentralization was referred to as *Nuevo Federalismo* (New Federalism) and was a much more transparent system of transfers than previous systems (Peredo 2000). *Nuevo Federalismo* encompassed reforms in a number of areas: power and separation of power among the branches of the government, power of and autonomy for state and municipal levels of government, revenue-sharing system, and electoral system. In addition it espoused separation of the PRI and the government and development of new forms and opportunities for both representative and participatory democracy. The advent of *Nuevo Federalismo* marked the first time since the administration of Benito Juárez (1867-1872) that a government agenda focused on the power of branches of government (horizontal decentralization) in addition to levels of government (vertical decentralization) (Rodriguez 1998, 247).

Traditionally, state legislatures have been weak and unable to approach the powers of the local executives, who look to the federal government instead of the regionally elected state government (Rodriguez 1998, 249). However, as state

legislatures become more politically independent from the governor they are accorded more confidence and thus more support from the public. This allows the state legislatures to play a more decisive role as a counterweight in state affairs. These changes, which began under Nuevo Federalismo, created greater competition between the governor and state legislature and between the state and local governments. Such competition allows for greater openness within the governmental structure, contributing to a slight degree of autonomy for the *municipios*. These reforms have progressed slowly for the federal to the state level, and at a protracted pace from the state to the local level.

Zedillo's Programa para la Modernización de Administración Pública (PROMAP) (Public Administration Modernization Program) is among a variety of projects under Nuevo Federalismo. PROMAP proposed four subprograms, one of which was administrative decentralization. The emphasis within this subprogram included improvement of conditions and efficiency for the supply of public services by sub-national public institutions. Although on paper the program looked impressive, in reality there were a number of problems. Main obstacles included funding and consolidation of necessary consensus and technical capacity. As a part of this, there was also the issue of performance-driven budgets' challenge of giving public agencies enough independence without losing macro-economic and administrative consistency (Arellano-Gault 2001). PROMAP resulted in some implementation within the managerial side of the government without much influence to the political side—there was not a much of a shift in political control.

The Zedillo administration's decentralization efforts, the so-called Nuevo Federalismo, increased participation in decision-making, recast intergovernmental

relations and reduced dependence upon higher levels of authority. This program also weakened the institution of the presidency and attempted to strengthen the fiscal and administrative roles of the state and local governments in a number of policy sectors. However, just as with the Salinas administration, although the changes targeted both the state and municipal governments, most decentralization efforts focused on the states.

Concurrently with *Nuevo Federalismo*, an increase in support (and pressure) from the World Bank and other international organizations pushed the Mexican government toward further local government capacity building, privatization of services, and the downward transfer of administrative responsibilities (Mumme 2000). Studies funded by international organizations showed positive developmental results stemming from the promotion of greater decentralization with adequate resources in political, fiscal and institutional arenas (World Bank 1995, Parker 1995, 35). A further push towards decentralization began in 1994 with Mexico's entry into the Organization for Economic Co-operation and Development (OECD). Entry into the OECD exposed Mexico to accounting rules and philosophy promoting decentralization, reinforcing the trend. Thus preparation of Mexico's 1996 federal budget saw important advances in favor of decentralization including effective decentralization in 1996 of more than two-thirds of poverty programs and elimination of the possibility for state and municipalities to use federal government funding to guarantee loans with commercial and development banks (OECD 1998a, 24).

Each of the discussed administrations, along with international actors, has affected the development of Mexico's decentralization efforts. The administrations have focused a substantial amount of their decentralization efforts on the formal or legal

framework, instead of focusing on the transference of fiscal resources. Although this has left critics questioning the extent of actual decentralization, it has set the stage for transformations in the future. For example, Mexico's formal framework for environmental decentralization is contained within the Constitution and other legal documents. Although the framework may not be fully implemented, their revised discussion of the federal, state and local governments' rights and responsibilities open the door for increasing levels of decentralization in the years to come.

The Fox Administration

The Fox administration has continued with the call for greater decentralization. A former state governor himself, Fox appears to be a keen advocate of increasing regional decision-making at the state and local levels. As a result, policy decisions in development areas such as education, health, and the environment are now more frequently made by the states and *municipios* in conjunction with the federal government (World Bank 2002). For example, the Fox administration has shown movement toward decentralization with a recent reform of the General Law on Ecological Equilibrium and Environmental Protection (LGEEPA), which deepened administrative decentralization and mandated emissions reporting by private industries (Nauman, 2002b). The administrative decentralization of environmental responsibilities achieved with Fox's reform to LGEEPA is set to allow states and municipalities to take over many of the chores once reserved for federal administration (Nauman, 2002b).

In his economic development plans, Fox has stated his commitment to increased local autonomy through promotion of local government effectiveness, increased access to

municipal finance, and increased citizen participation. In order to achieve this, under Fox, Mexico's Federal Municipal Development Office has been working with USAID. By the end of his term in office Fox is expected to have decentralized power both horizontally, advocating a more active role for the legislature and judiciary, and vertically, passing on greater administrative authority and fiscal capacity to state and local government (Shirk, 2000).

Mexico's Framework for Environmental and Water Decentralization

Increasing concern about natural resources provoked development and expansion of Mexico's environmental and water legislation within the last three decades. This combined with past administrations' moves to transfer responsibilities to sub-national governments, has produced an increase in legislation to decentralize Mexico's environmental and water policies. An overview of the evolution of Mexico's environmental and water legislation will reveal this point and will show that although within Mexico the majority of natural resource issues fall beneath the overarching umbrella of environmental protection, as concern over water has recently intensified, the legislation specifically addressing water has expanded.²⁴

Background to Mexico's Environmental Policies: 1917-1980s

Since its promulgation in 1917, the Mexican Constitution has addressed the conservation of natural resources. From 1917 until 1970 Mexico's environmental legislation was concerned with regulating the exploitation of natural resources in order to provide a framework for productive activities rather than to actively protect natural

²⁴ See Appendix A for a historical list of environmental legislation.

resources. Much of this early legislation managed each natural resource as a separate entity; as such the government enacted legislation for separate management of water, forests and national parks within Mexico. It was not until the 1946 Law for the Conservation of Soil and Water that Mexico first attempted to integrate the management of resources.

The year 1971 marked the beginning of the second phase in Mexico's environmental legislation, a period of greater environmental awareness. The discovery of huge oil reserves within Mexico led to a substantial drop in Mexico's air and water quality. The ensuing severity of environmental problems in Mexico resulted in concern about possible political and social unrest (Simonian 1995, 178-9). As a result Mexico's President Echeverria (1970-1976) enacted Mexico's first piece of antipollution legislation, the Law for the Prevention and Control of Pollution (LFPCC), which was intended to restore environmental quality by eliminating the causes of pollution. LFPCC also coincided with the United Nations Stockholm Conference on the Human Environment of 1972, the first international forum for environmental protection.

From 1972 until 1982 Mexico formally expressed its attempt to create more effective environmental legislation by passing Constitutional amendments that created better enforcement for regulation and granted more power to federal agencies (Yakacki and King 2003). Among the amendments was the Ley Federal de Proteccion al Ambiente (Federal Law on Environmental Protection), published in 1982, which broadened the scope and formal reach of environmental law. Ultimately this early environmental policy raised awareness of environmental conditions for citizens and politicians alike. However, despite these formal measures, the legation demonstrated that

the administrations' concern lay more with the expansion of agriculture and industry than with the integrity of the environment. The environmental initiatives were limited to pollution control and did not combine environmental protection and the conservation of natural resources together into a single program for ecological maintenance (Simonian 1995, 181). Additionally, the ordinances were largely un-enforced and conservation programs were scattered and uncoordinated.

In 1982, with the administration of de la Madrid, environmental reform was placed on the presidential agenda for the first time. Following the agenda, in 1984 de la Madrid promulgated a series of reforms to the 1982 environmental law. These reforms, among other things, introduced new concepts such as ecological norms and environmental impact and addressed inter-governmental coordination in environmental matters. Although the reforms never achieved full regulatory potential, and thus the 1970s regulations relating to air, water, and soil quality remained in effect through the 1980s, their existence marked the beginning of greater recognition of environmental concerns within Mexico. Since the administration of de la Madrid, environmental concerns have become more widespread, drawing increased levels of attention not only at the federal level of government, but also at the state and local levels. This evolution of environmental legislation reveals not only the increasing concern surrounding a wider range of environmental issues, but also expansion of concern at the sub-national levels to have legal rights to deal with environmental issues within their regions.

The third phase of Mexico's environmental legislation began in 1988 with the publication of the General Law on Ecological Equilibrium and Environmental Protection (LGEEPA). The passage of LGEEPA signified a movement to protection of the

environment and water due to its establishment of a needed framework for the enforcement of regulations. (LGEEPA included water quality within its overarching discussion of environment, as the two are inseparable.) Furthermore, the LGEEPA was taken seriously, by 1994 there were 169 Official Mexican Norms set to regulate pollution and environmental control (Yakacki and King 2003).

The Sub-federal Elements within Mexico's Current Environmental Legislation

The changes in the early 1980s strengthened the Mexican Constitution as the legal foundation for federal and state environmental jurisdiction. Today, the Constitution gives the federal government explicit jurisdiction over a variety of environmental issues that establishes broad federal authority over natural resources and over the health effects of pollution. Specifically, Article 25 of the Constitution sets federal jurisdiction over national economic development and balances the conservation of resources against this economic development (Environmental Law Institute 1996, 7; Yakacki and King 2003). Article 27 establishes federal protection of natural resources. And Article 73, amended in 1987 to establish distinct roles for federal, state and municipal governments in preserving and restoring the ecological balance, establishes federal jurisdiction over health impacts of pollution, use and commercial exploitation of national water, and protection of aquatic and terrestrial species (Brañes 1987, 79-80; Environmental Law Institute 1996, 7). Under this legislation, the federal government is granted authority to deal certain environmental policies including performing environmental impact reviews of new industries under federal jurisdiction, and dealing with industries, particularly *maquiladoras* that produce,

import and export hazardous waste. That said, there is also legislation that grants the state and local governments authority over air, water and soil pollution.

State and local jurisdiction are traditionally much less developed and concerned primarily with the provision of public services and local land use planning. Furthermore, the distribution and acceptance of authority at these levels is reflective of Mexico's *nested fail-safe system*. The state and municipal autonomy that does exist is granted in Article 115 of the Constitution. Article 115 situates state and municipal governments' jurisdiction amid federal jurisdiction, regulating the basis for governmental organization, and granting the lower levels of government the ability to dictate necessary norms, so long as they conform to those of the higher levels of government. Focusing specifically on the municipalities, Article 115 establishes municipal control to formulate, ratify and administer urban and municipal development plans; to participation in the creation and administration of their territorial reserves; to control land use in their region; to grant construction licenses and permits and to participate in the creation of natural reserves.²⁵ However, despite *municipio* rights, Article 115 also includes a provision that allows states to carry out functions when necessary and when state law permits, placing parameters on *municipios*.

Changes to the level of jurisdiction and autonomy held by the states and municipalities, began with the 1987 constitutional amendment to include the concept of *conurrencia* within environmental protection. This constitutional amendment is the

²⁵ Early in 2001 the Fox administration began addressing decentralization issues. In March, the administration modified Article 115, granting municipalities increased autonomy and greater responsibilities (Villa 2001; *El Imparcial* 2001, *La Cronica* 2001). Currently there appears to be extensive support behind these changes with most states quickly ratifying the changes for their state constitutions. However, there are also concerns that although the increased autonomy may bring communities more efficient services, the municipalities may not yet be prepared to deal with the extent of their expanded responsibilities (Villa 2001). The full extent of the modifications to Article 115 is still to be identified.

primary basis for the movement towards decentralization of environmental policies and matters in Mexico. *Concurrencia* is the requirement that the federal government adopt legislation establishing joint participation of federal, state and municipal authority over environmental matters (Environmental Law Institute 1996, ii, 9; *Federal Constitution*, Article 73). It was implemented through the 1988 LGEEPA, which provides a comprehensive basis for environmental regulation and natural resource protection. This law and its 1996 reforms provide the framework for environmental policies and guarantees the right of every person to live in an environment suitable for his or her health and well-being.

The LGEEPA recognizes all levels of government, granting states and municipalities the right to exercise jurisdiction over matters not delegated to the federal government. The authorities granted to the federal government include performing environmental impact review of new industries under federal jurisdiction, and dealing with industries, particularly *maquiladoras* that produce, import and export hazardous waste. For state government, environmental authority over air, water and soil pollution are addressed in some detail. Furthermore, LGEEPA Articles 7, 8 and 10 authorize states and municipalities to adopt their own environmental ordinances and regulations for the purpose of implementing the national environmental objectives and regulations within their region.²⁶ LGEEPA grants municipalities the right to participate in state administered programs that will impact them, particularly the environmental impact

²⁶ It is worth noting that the states are not granted authority to issue their own standards for matters that fall under state jurisdiction. Instead states and municipalities are directed to apply federal standards in exercising their responsibilities. In fact, state and municipal governments are prohibited from adopting their own standards where a corresponding federal standard has been issued, even if the local standard would be more stringent (Environmental Law Institute 1996, iv).

implementation and emergency planning.²⁷ Finally, in December 2001, the Mexican Congress passed modifications to LGEEPA. These recent modifications give sub-national governments greater control over managing substances categorized as “low-level” toxic wastes, as well as increased responsibility for conducting environmental impact assessments. They also grant the sub-national governments more involvement in managing protected areas, preserving coastal areas, preventing air and noise pollution, handling inspections under LGEEPA, and developing the National Environmental Natural Resources Information System (Gaceta Parlamentaria 2002; Nauman 2002a).

By 1994, nearly all of the Mexican states had taken advantage of the rights set forth by the LGEEPA, enacting state environmental laws that further specified the division of labor between states and municipalities in delivering environmental protection (Mumme 2000). Furthermore, by 1994, Mexico had adopted not only the LGEEPA, but also a number of federal environmental laws decentralizing water, mining, fisheries, forestry²⁸, agrarian affairs and the sea. (See appendix A.) These laws added to the formal, theoretical decentralization of Mexican environmental and water policy.

Mexico's Water Legislation

Similar to the environmental legislation, the legal foundations of Mexico's water resources are laid out in Mexico's 1917 Constitution. Article 2 of the Constitution states that the Nation is the original owner of all surface and groundwater within the Mexican territory. Articles 27 established the principle of “original nation's property” over inland

²⁷ For an excellent description of the municipal rights under LGEEPA, see Mesta Fernández (2001).

²⁸ Article 7 of the Forestry Law was modified in December 2002, to decentralize decision-making powers (Gaceta Parlamentaria 2002; Nauman 2002a).

surface waters and underground water resources. This article supports a philosophy of water management that fosters public planning and constrains private ownership of water as a market good. Traditionally this has meant the federal government, if not the President himself, decides case-by-case where public interest lies. The water resources are also addressed in the 1972 National Water Law (*Ley de Aguas Nacionales*), which is subordinate to Article 27. The National Water Law established that private individuals might exploit national waters through a concession or license granted by authority (i.e., by the President). Then in 1992, a new National Water Law was approved calling for an integral approach of both quality and quantity of surface and groundwater, within watersheds and stating the power of the federal executive to limit users rights through regulation of water use (Comisión Nacional del Agua 1992). In 1994 by-laws to the National Water Law and 1997 modifications to the by-laws were issued by the federal executive setting out broad objectives for the development and implementation of plans and policies for water resource management, mandating the development of *consejos de cuencas*, watershed and river basin commissions or councils, and establishing hydrologic infrastructure (Comisión Nacional del Agua 1994, 1997). Additionally with the modifications came greater advancement for privatization of water resources. Individual and corporate users were authorized to receive water rights permits granted for up to 50 years with the potential for transfer and renewal subject to administrative review. These changes partially devolved water management to sub-federal entities.

Today's National Water Law (1992, 1994, 1997) recognizes the importance of efficient water resource management and achieving sustainable development and use of the nation's water resources. It supports greater user participation in policy-making, one

federal authority in charge of water administration, and legal certainty for water use and rights so that private entities may plan for the long-term. Additionally it requires creation of *consejos de cuencas* as instruments of institutional coordination to bring together users and the civil society, and to regulate attention to water issues in each basin. By doing this, the National Water Law recognizes *consejos de cuencas* as the coordinator among the three levels of government and as the instrument for negotiation between water users and government agencies. However, despite the National Water Law's discussion of the need to preserve and conserve water resources, the Law fails to include a formal voice for preserving environmental and water quality in the same manner that agricultural, industrial and urban uses have a formal voice (Brown and Mumme 1999, 133). Thus, the *consejo's* negotiation may not effectively represent all opinions, and particularly as decentralization grants sub-national governments more power, the results of the negotiations may be clear before they take place, thus lessening the power of the *consejos*. What this reveals is that sub-national government decentralization may overtake the current power formally given to citizen groups.

In addition to these issues, Article 115 of the Constitution assigns the *municipios* primary responsibility for water supply and sanitation service. This responsibility, introduced with the constitutional reform of 1983, promotes devolution and decentralization of water management and infrastructure and the transference of federal resources to the state and local governments, adding to the capacity of the sub-national governments.

Clearly the formal structure of laws is the first step in the process of making meaningful environmental and water policy, let alone meaningful decentralized

environmental and water policy. However, the legislation is not sufficient on its own. It is necessary to move beyond legislation and have agencies that work to implement the legislation. The next section reviews the succession of federal agencies within Mexico that have been charged with working with environmental and water matters and legislation.

Agencies Charged with Implementation of Legislation

Agencies Charged with Implementation of Environmental Legislation

The primary federal institution currently charged with implementing environmental legislation and regulating environmental issues within Mexico is the Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) (Secretariat of the Environmental and Natural Resources). SEMARNAT is responsible for formulating and implementing national policies relating to natural resources; promoting the protection, restoration, and conservation of ecosystems and natural resources; monitoring compliance with environmental laws and regulations; promoting ecological land use planning and promoting public participation.²⁹ The development of the primary environmental institution, SEMARNAT, began in the early 1970s with the advent of environmental legislation.

Following the 1971 Federal Law to Prevent and Control Environmental Pollution, an environmental improvement agency was created within the Secretariat of Health and Assistance (SSA). This agency was charged with enforcement of the law, in concert with other federal agencies, until late-1982 when De la Madrid created the Secretaría de

²⁹ For a more detailed discussion of SEMARNAT and its responsibilities, visit www.semarnat.gob.mx/

Desarrollo Urbano y Ecología (SEDUE) (Secretariat of Urban Development and Ecology), Mexico's first cabinet-level environmental agency (Simonian 1995, 186). SEDUE was empowered to establish rules and procedures, issue permits and ecological technical standards and evaluate environmental impact assessments to prevent and control environmental pollution. It remained the agency in charge of environmental protection until 1992 when Salinas abolished the agency he had inherited from De la Madrid, and transferred responsibility for environmental affairs to a new agency, the Secretaría de Desarrollo Social (SEDESOL) (Secretariat of Social Development) (Umlas 1996b, 245). SEDESOL was charged with many of the same responsibilities as were its predecessors, however it also housed sub-agencies, including two decentralized agencies which focused on environmental matters: the Instituto Nacional de Ecología (INE) (National Institute of Ecology) and the Procuraduría Federal de Protección al Ambiente (PROFEPA) (Office of the Attorney General for Environmental Protection). The INE was charged with formulating and implementing environmental laws within Mexico PROFEPA was charged with enforcing those laws. Additionally, the by-laws of SEDESOL created state delegations of the Secretariat to facilitate federal-local cooperation of enforcement of environmental regulations.

This structure remained intact until December 1994 when Salinas left office and Zedillo became president. Zedillo transferred primary responsibility for environmental protection from SEDESOL with reorganization of the administrative structure of the federal environmental authority. Changes in the Ley Orgánica de la Administración Pública Federal created the centralized Secretaría del Medio Ambiente, Recursos Naturales y Pesca (SEMARNAP) (Secretariat of the Environment, Natural Resources and

Fisheries), and changed SEDESOL's charge to that of social development matters (Environmental Law Institute 1996, 17; Dedina 2000, 70). At this time, the INE and PROFEPA were also transferred to SEMARNAP and the Comisión Nacional del Agua (CNA) (National Water Commission), which manages federal waters and water treatment, was put under SEMARNAP. These reforms were intended to centralize and streamline federal environmental and natural resource policy-making in an effort to achieve sustainable development. The system attempted to meet this mandate until 2000 when the Fox administration took office.

With the advent of the Fox administration the primary federal environmental institution, SEMARNAP was changed to the Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) (Secretariat of the Environment and Natural Resources), with the transferring of the fisheries section to the Agricultural Secretary.³⁰

Agencies Charged with Implementation of Water Legislation

Before 1989, Mexico's water resource policies fell under the authority of a number of federal agencies. Different agencies were responsible for different aspects of water: agriculture, hydraulic infrastructure, and water salubrity. There was no regard for pollution or conservation. In 1989 the federal executive created the CNA, a deconcentrated administrative agency charged with uniting all aspects of national water management. The CNA was divided into six national managerial districts and 32 managerial sections, one for each Mexican state and the Federal District. Each CNA district was invested with full authority to look after water use management within their

³⁰ For a more complete overview of the institutions, see Belausteguigoitia and Guadarrama (1997, 116-117).

geographic jurisdiction. They were given powers according to water scarcity, and volume requested. That is, state managers were to deal with requests of minor volumes in zones with relatively abundant water that did not affect other states. Regional managers were given authority in dryer zones and on issues that affected more than one state and involved greater volumes; and the CNA federal Sub-director was granted the power to deal with requests for the largest volumes in the driest zones, issues that affected more than one region, and with international waters (International Office for Water 2003).

When created the CNA was an autonomous agency attached to the Ministry of Agriculture and Hydraulic Resources (SARH), which later became a part of SEMARNAP (Buras 1996, 233). With the advent of the 1992 National Water Law, CNA was defined as the sole federal water authority in the country. CNA responsibilities and powers include formulation of hydraulic programs, construction and preservation of hydraulic works and management, in a few cases, of hydraulic systems. Finally, the CNA was the regulator for urban water supply and sanitation since the responsibility for these services fell to the state and local governments.

More recently, Mexico has made an integral effort to modernize the CNA. This included improving the utilization of water resources as a means of strengthening the financial and operational capabilities of the CNA and local authorities, efficiently administering the water supply based on local knowledge, and facilitating effective solutions to local and regional problems by establishing *consejos de cuenca*³¹ (watershed

³¹ The CNA has defined three orders of watersheds, and thus has differing administrative organisms with each order. The first order *cuencas* are the principal large rivers' basins that drain to the ocean, such as Rio Bravo/Grande and the Colorado River. Second order *cuencas* are the sub-basins or smaller watersheds nested within the large river basins. These watersheds are labeled second order

or river basin councils) and increasing participation of users. Among the recent policy goals of the CNA are greater decentralization, autonomy and private participation concerning water policy. Consequently the agency currently carries out the fundamental activities of integrating and reorganizing *consejos de cuenca* in 13 hydrologic regions, as defined by the *Programa Nacional Hidráulica* (National Water Plan 1995-2000), and mainly provides funding for the construction of infrastructures and necessary equipment to control the hydrologic system, emergency preparedness, and rural water supply and sanitation (Herrera Toledo 1998).

Implementation of Mexico's Environmental and Water Decentralization

Over the past three decades there has been a flurry of governmental activity in the environmental and water arenas. Legislation has progressed from federal-centered regulation of the exploitation of natural resources, to that which describes greater sub-national rights and responsibilities and provide greater protection of the environment and water. There has been formal movement toward decentralization and provision for decentralization in environmental and water laws. In addition there has been a development of agencies to deal with an expanding list of environmental and water issues. These agencies have seen the expansion of their agencies to locations around the country, and an extension of their authority. However, this leave us with the question of

cuencas. Finally, the third order *cuencas* are small watersheds that encompass relatively small territories and may demonstrate intermittent stream flows (CNA 1998, Michel 2000a). The governance structures for these three orders of *cuencas* is as follows: first order watersheds are governed with a watershed council or *consejo de cuenca*, second order watershed are managed by a watershed commission or *comisión de cuenca*, and third order watersheds develop a watershed committee or *comité de cuenca* (CNA 1998, 26; Michel 2000a).

how the legislation was implemented by the agencies, and what responsibilities and powers were transferred, not just in formalities but in actuality, to the sub-national units.

Application of Environmental Legislation

Looking from the perspective at the actual application of environmental decentralization it remains unclear whether Mexico's official environmental decentralization initiative has brought about meaningful sub-national decentralization. In order to come to an answer to this query, it is necessary to explore if the federal level has granted the sub-national entities the capacity to decentralize. First, it is clear that the process of decentralization has begun; there are laws and regulations that create the framework for sub-national governments to have more control of environmental issues. In other words, the beginning of an enabling environment has been created. This is apparent through the aforementioned evolution of environmental legislation within Mexico. In addition, from 1995 to 1999, SEMARNAT signed *convenios* (agreements) with Mexico's 31 states and federal district and specifically had signed 163 decentralization agreements with the Mexican border states (see Table 2.1).

Table 2.1: SEMARNAP Decentralization Agreements with Mexican Border States (1995-1999)

| State | Number of Agreements |
|-----------------|----------------------|
| Baja California | 22 |
| Sonora | 42 |
| Chihuahua | 17 |
| Nuevo León | 23 |
| Coahuila | 21 |
| Tamaulipas | 38 |

Source: EPA 2001, 16

Both the discussed legislation and Table 2.1 show that the federal government has gone beyond talk, they have acted on the development of creating a legal framework for

decentralization. That said, existence of a legal framework does not mandate decentralization. Point in fact, much of SEMARNAT's effort to sign agreements with the states entailed transferring responsibilities to SEMARNAT's own state-level offices rather than to state and municipal environmental bureaus (OECD 1998b, 143-144; SEMARNAP 2000b). Additionally, capacity for the implementation of decentralization takes more than the existence of legislation stating legality and intentions. In order for sub-national governments to take on the decentralized responsibilities they should have human resource and institutional capacity.

Generally speaking, within Mexico, the federal government has not provided sub-national entities support and resources necessary for environmental decentralization. The lack of these resources has created obstacles for the process of decentralization to continue. Four main obstacles exist to implementing decentralization activities in Mexico: conflicting elements within the legal framework, lack of sufficient financial resources, lack of institutional capacity at all levels, and resistance from the sub-national governments.

Despite legislation and agreements that state intentions for environmental decentralization, SEMARNAP admits that some of its administrative regulations do not account for decentralization at the state and *municipio* levels. The writing of agreements without taking the time to adjust administrative procedures creates situations of confusion and frequently of immobility. Because SEMARNAP did not make the necessary adjustments, they have hindered the timely transfer of the newly decentralized responsibilities (López Powers 2001; USEPA 2001, 17). A second obstacle to environmental decentralization is the lack of sufficient financial resources. Within

Mexico neither the federal programs (mainly through SEMARNAP) nor the sub-national governments have sufficient financial resources to fully implement the decentralization process. At the federal level, under the Zedillo administration and even more so under the Fox administration, SEMARNAP/SEMARNAT has faced extensive budget problems due to reforms supporting industrial programs (De la Parra 2002). At the sub-national levels, because states and *municipios* are heavily dependent on the federal government for funding, and because funding changes year to year, it is difficult for a sub-national government to commit to more than year-long projects. This has limited what the sub-national governments can realistically accomplish even if they do have the power to make decisions (Sortillon, 1998).

A third obstacle to implementation of environmental decentralization processes is a lack of institutional capacity. Although some efforts are currently underway to strengthen environmental institutional capacity at sub-national levels through the creation of the Regional Sustainable Development Program (PRODERS) Regional Sustainable Development Councils and the *Comisiones Mixtas para la Descentralización* (Mixed Commissions for Decentralization), whose commissions are still in early stages of development, impact of these programs are minimal due to poor program integration (Szekely 2001, 4) and general lack of assessment available. With time the federal, state, and public representatives active in these programs should gain experience and build institutional capacity to perform the functions they were created to execute. However, at this time there is still a lack of institutional capacity. Similarly, sub-national governments also lack institutional capacity. For example in the border states of Sonora and Tamaulipas local environmental organizations are more likely to have connections with

the state environmental agencies than with the *municipio*'s ecology or planning and public works agencies because the *municipio* agencies are not believed to have true power over decision-making (personal interview Martinez 2000). In other words, despite the existence of decentralization legislation granting the local government the power to make decisions, because the local agencies do not have the capacity (the expertise, equipment, or support) to carry out the decisions, organizations would prefer to jump to the state level where they have at least a degree more capacity.

A final obstacle to implementation of decentralization processes is resistance from the sub-national governments. The degree of resistance from these governments varies, and depends to a large degree upon resources available. However, sub-national government aversion also lies in resistance from some areas of SEMARNAP and its federal delegations to transfer the authority (López Powers 2001; USEPA 2001, 17).

Overall it is clear that there are a number of issues that need to be addressed in order for environmental decentralization to truly be implemented within Mexico. At this time it is unclear whether the Mexican federal government is truly convinced of the benefits of environmental decentralization, it seems likely that this is a case of inclusive authority where lower levels of government continue to be subordinate to the upper levels of government.

Application of Water Legislation

Despite interconnections and some overlap with environmental legislation, the process of decentralization for water policy appears to have developed differently than the process of decentralization for environmental policy. It appears that there is greater

fiscal capacity for decentralization in the area of water policy, furthering the process of decentralization. What has led to this difference between water and environmental policies appears to be generally focused on the fact that people view the resources differently, water is seen as a necessity and environmental protection is seen more as a regulatory issue. This distinction has affected both the policies and the agencies that carry out the policies.

When created (1989), the CNA inherited a centralized water system in which citizens had lost confidence (World Bank 1996). Not long after its creation, the CNA was relocated from the old SARH to the newly created SEMARNAP. This change strengthened CNA's administrative and management authority because it was no longer located within a Ministry responsible for one sector (agriculture) and thus could develop an integrated management approach (World Bank 1996). Furthermore, shortly thereafter (as a part of the *Programa Nacional Hidráulica* [National Water Plan] 1995-2000), CNA's agenda was expanded to include increased modernization and decentralization, taking into consideration all uses and the preservation of the environment. Thus not long after its creation, the CNA had the legal framework and the charge to decentralize—the enabling environment existed.

In addition to the enabling environment, the CNA also worked on creating an institutional environment favorable to decentralization by working to improve the regional offices' abilities to function and making an effort to incorporate the state and local governments as a part of water administration. In other words, the CNA has attempted to improve the human and institutional resources for decentralization. First, the National Water Plan 1995-2000's mandate for CNA to increase decentralization was

applied through increased responsibilities given to the regional offices, including development of hydrographic regional plans, coordination of water resources planning and management activities, water quantity and quality monitoring, reservoir operation, dam safety, and promotion and strengthening of *consejos de cuenca*. Second, and connected to this, the National Water Plan 1995-2000 also charged CNA with reorganizing their administrative structure, replacing the thirty-two state-based offices with thirteen regional offices that are divided along watershed or river basin boundaries. This reorganization facilitated the regional offices' ability to carry out their water management responsibilities because river basins are located totally within the geographical limits of the regional offices (World Bank 1996, 3). Thus, each regional office can control the water issues for the watersheds they are responsible for instead of needing to coordinate through the centralized CNA office. However, the regional branches are still tied to the federal office through funding, or lack thereof (Castelán Crespo, 2001).

In addition, within each region there are designs for coordination and agreement units of federal, state, and municipal authorities as well as water users and stakeholders—*consejos, comisiones* and/or *comités de cuenca*. Among the tasks of the *consejos, comisiones, comités de cuenca* are: participation in planning and development of water resources and management and assistance in the conservation and restoration of hydrologic basins (World Bank 1996, 9; Herrera Toledo 1998, 35). By 2002 twenty-six *consejos de cuenca*, seven *comisiones de cuenca*, and five *comités de cuenca* had been established (CNA 2002a). Although there is still some question as to the effectiveness of

the *consejos de cuenca* (Castelán Crespo, 2001), the World Bank (1996, 1) suggests the CNA has successfully joined

state and local governments, water users and other interested parties in programs designed to improve water resources planning and management, modernize water infrastructure, improve and make more responsive operation and maintenance activities, and reduce technical and financial dependence on central authorities.

Two important programs strengthen and provide some federal monies to state and *municipio* water agencies. Both of these programs have helped expand transference of responsibility for potable water, sewage and sanitation, and infrastructure for the supply of drinking water (Herrera Toledo 1998, 32). The first is the 1990 National Program of Potable Water, Drainage, and Wastewater Treatment (Programa Nacional del Agua Potable, Alcantarillado y Saneamiento). This program was set up to be jointly financed by the federal, state and local governments until the hydrologic infrastructure had been constructed. Once the infrastructure is constructed, the administration and management is transferred to the communities that are benefiting (Herrera Toledo 1998, 28). As a consequence of this program, the decentralization process in the urban environment was reinforced through recently created CNA operative agencies at the state and *municipio* levels. These operative agencies are characterized by both administrative autonomy and the goal of reaching financial self-sufficiency (Castro 1995, 482). The corresponding process in the rural areas consists of the transference of administration to users associations within irrigation districts. In both the urban and rural aspects of this project the CNA provided technical advice.

An example of a project under the National Program of Drinking Water and Sanitation is the Guadalajara Project. The CNA has worked with federal, state, and

municipio governments in an attempt to make potable water, drainage and sanitation services more efficient, reducing extraction from Lake Chapala, and improving water quality (Herrera Toledo 1998, 29).

The second federal program to strengthen water agencies is the Program for Potable Water and Drainage in Urban Zones (Programa de Agua Potable y Alcantarillado en Zonas Urbanas), APAZU. APAZU allows states and municipalities to request federal financial assistance for the improvement or construction of potable water, sewage, and wastewater treatment infrastructure. To receive federal assistance with APAZU, states or *municipios* sign an agreement committing to have their municipal water utilities become financially solid or at least reaching a "break even point" on their operations within five years. Additionally the local congress must authorize the financial plan so that any tariff increases that are part of the plan will be approved.

APAZU foments creation or expansion of infrastructure in urban zones and supports the strengthening and consolidation of operating organisms in order to improve efficiency, increase revenues, and reduce dependence on the federal government (Herrera Toledo 1998, 28; CNA 2002b). APAZU is available to *municipios* with populations greater than 2,500 (CNA continues to directly finance the development of infrastructure of the smallest *municipios*). The program provides the largest federal subsidies to poorer municipalities. Under APAZU there have been substantial improvements in ten states, including all border states except Nuevo León (CNA 2002b).

Although rural areas do not have a developed program such as APAZU, the CNA has promoted the creation of Water User Organizations, decentralizing operation and maintenance activities in irrigation districts. Transferring the administration and

operation of the districts began in 1989, has made substantial progress, and has included support for the acquisition and replacement of machinery. Although the federal government has not supplied vast monetary resources for the program, user quotas (forty-three percent) and taxes (fifty-seven percent) cover the budget (Herrera Toledo 1998, 30).

Finally, the Zedillo administration determined new areas of activity to be transferred to the states: four involved the hydro-agricultural sector and four were related to municipal use and conservation³². This decentralization effort was formalized by elaborating Coordination Agreements, which were signed by all the states and served as the basis for transferring some federal financial resources to help the states. As designated in the Agreements, the CNA provides fifty percent of the total investment agreed upon for these programs and the producers and/or state governments provide the other fifty percent (Herrera Toledo 1998, 35).

There is an enabling environment, and human resource and institutional capacity for decentralization within the water sector. These resources do exist, however it is important to note that they are somewhat limited and are dependent upon the federal Congress since CNA's financing depends directly upon annual budget allocations authorized by the Congress (World Bank 1996, 37). Additionally, although legally given greater responsibilities, and in certain sectors greater resources, many of the state and municipal governments do not have the resources necessary to carry out the responsibilities, obstructing true decentralization. For example, Mexican states have retained responsibility for water services in many *municipios* due to lack of resources and

³²The operating programs included: Full Use of the Agriculture Hydrologic Infrastructure; Efficient Use of Water and Electric Energy; Development of Farm Plots; Rehabilitation and Modernization of Irrigation Districts; Clean Water; Control of Aquatic Plants and Underbrush; Potable Water and Sanitation in Rural Zones; and APAZU Program of drinking water, sewage and sanitation in urban zones.

municipio reluctance to assume responsibility for provision of services with extensive problems created by poor management of state utilities. However, even in situations where the *municipios* are reluctant to accept full responsibility for water services, some decentralization has occurred through granting of project construction authority to local branches of state utilities.

Overall, although not decentralized to the degree of devolution, those involved in water sector administration agree that decentralization, at least deconcentration, and in a limited number of sectors, delegation, has occurred. However without the federal government distributing control of resources, particularly fiscal resources, further decentralization will not occur (Moreno V. 2000; Pineda-Pablos 2000; Castelán Crespo, 2001). For greater progress in the process of decentralization, the federal government need to clarify which level of government has responsibility for what, including granting the sub-national governments the right to decision-making, establish programs for permanent capacity building, not just technical aspects, and develop a civil service to help manage water resources over time.

Discussion

By looking at the big picture of Mexican environmental and water policy decentralization what has become evident is that decentralization has become a clearly articulated formal objective in Mexican environmental and water management. Both the environmental and water sectors have developed legislation that sets out goals for increasing the level of decentralization. However, both environment and water also have

legislation that contains poorly defined definitions and unclear divisions among the various levels of government.

Moving past similarities in legislation, the big picture reveals that there is a substantial difference between environmental and water policies in Mexico. This difference is based in the fact that environment is viewed as a regulatory concern with connections to human health while water is seen as a basic necessity for both humans and economic development. This difference has had an affect on the agencies in charge of the environmental and water legislation.

SEMARNAT and the other agencies that deal with environmental issues have many obstacles to achieving decentralization. First, the agencies themselves have been reorganized a multitude of times, adding and taking away responsibilities. This, instead of creating stronger environmental agencies, has created agencies that must simply re-learn their rights and responsibilities and acquaint themselves with different sectors of constituents (agriculture, fisheries being two that come and go a lot). In addition, the federal, state and local agencies lack sufficient financial resources and institutional capacity, and due to these first two lacks, they face resistance from the sub-national governments to take control. Third, the SEMARNAT programs that do exist strongly favor federal agencies and are best conceptualized as administrative deconcentration, or interagency task sharing at the federal level—a hybrid from of delegation. None of the programs actually devolve authority to state and local government, even where these governments are consulted or participate in planning exercises such as with PRODERS Regional Sustainable Development Councils. Finally, the environmental agencies are designed to function within the political boundaries, instead of functioning within an

ecosystem. This forces the state agencies to ceded control due to shared resources. Overall, Mexican environmental protection policy remains highly centralized in practice. This is reflected in the poor capacity of state and *municipio* governments: limited funding for environmental protection at the state and *municipio* levels, a dearth of qualified technical personnel in *municipio* governments, and persistence of political and administrative practices that work against the accrual of administrative expertise (Romero-Lankau, 2000; Lybecker and Mumme 2002).

In contrast to the environmental sector, the CNA was more quickly granted greater legal control and there has been a greater emphasis on project development. Additionally, the federal government mandated reorganization for the water sector following natural divides in water systems instead of state lines. This gives the regional offices greater control because resources are not split. Finally, sub-national governments are interested in controlling water supplies and associated aspects of economic development. Instead of being responsible for enforcing regulatory controls, with water, the sub-national governments get access to control a vital resource.

Differences aside, the federal government needs to address a number of issues before either environmental or water sectors can claim true decentralization. It is necessary to establish clear definitions of which level of government is responsible for what and grant sub-national governments the right to decision-making and coordination among the federal, state, and municipal governments and civil society to assure local knowledge and federal technology are all considered within resource management. Additionally, state and local governments need training in more than the technical aspects, they need instruction in institutional organization and resource management so

they can manage for the long term, and finally there needs to be greater transparency and public participation to assure efficient management.

In order to explore the possible causes behind why environmental decentralization legislation and water decentralization legislation have not only developed differently but also have been implemented differently, we need to move beyond the national arena. Particularly for the northern border states, those that are generally considered the forerunners for environmental policy, there are also influences from international entities. The next section discusses a number of the international influences affecting environmental and water policies along Mexico's northern border.

Framework for Environmental Policy and Decentralization on the U.S.-Mexico Border

To make environmental and water decentralization even more complex, there are also international legislation and actions that affect Mexico's environmental and water policies and their implications. This is particularly true for Mexico's northern border states and their *municipios* that are constantly in contact with the US, and are directly impacted by the international treaties and agreements. Because the northern border states and *municipios* are affected and in effect pushed by these additional influences, it is necessary to have a general understanding of the international agreements that exist and the ways in which they can and have affected environmental and water policy in, particularly, Mexico's northern border states. Thus, looking at the evolution of agreements concerning environmental and water issues within this region allows us a greater understanding of the international affects upon Mexico's northern states' environmental and water policies.

Concern for and management of environmental issues in northern Mexico and particularly on the U.S.-Mexico border occurs in the context of North-South cleavages over development priorities and considerable interdependence between the two countries. The earliest U.S.-Mexico border environmental agreements focused on shared water resources.³³ Among the most important early agreement is the 1944 Water Treaty. This treaty documented water sharing between the two countries, dividing the waters on the Colorado and Rio Grande/Bravo Rivers. It also established the International Boundary and Water Commission (IBWC), a bi-national agency with authority over disputes involving territorial limits, water allocation, wastewater treatment, sanitation, and water quality, that still exists today.³⁴

In 1983 the United States-Mexico Border Environmental Cooperation Agreement (La Paz Agreement) was signed in La Paz, Mexico. This agreement provides an institutional framework for the articulation of bilateral public concerns about the environment and negotiation and resolution agreements dealing with these problems. The La Paz Agreement and its amendments³⁵ commit the Mexican and U.S. governments to consult and attempt to find bi-national solutions to transboundary environmental problems. It is often regarded as the foundation for bi-national cooperation on border environmental issues as it instigated greater focus on the borderlands.

³³ See authors such as Harvey Fergusson (1955), Norris Hundley, Jr. (1966), John C. Day (1970), Albert Utton (1973), Ernesto Enriquez Coyro (1975), and David B. LeMarquand (1977).

³⁴ In 1983 Minute 242 of the IBWC expanded the 1944 Treaty, adding an agreement on delivery of water at a salinity level pegged to the average salinity at Imperial Dam. With this action Mexico was assured of receiving water with the same level of salinity as that used by Imperial Valley farmers in the U.S.

³⁵ For example in 1987 the US and Mexican governments signed the 4th Annex to the La Paz Agreement, placing limits on sulfur dioxide emissions along the border.

Many ideas of the La Paz Agreement have carried through to the 1990s debate and ultimately to the ratification of the North American Free Trade Agreement (NAFTA). In the process of establishing NAFTA, three new organizations were created to deal with border issues. The U.S.-Mexican Integrated Border Environmental Plan (IBEP), adopted in 1993, was designed to strengthen bi-national capacity for managing environmental and water problems. The IBEP aimed at surveying and identifying environmental problems along the border in addition to coordinating existing plans and programs between the countries. In 1996 the Border XXI Program replaced the IBEP. This bi-national program is designed to promote sustainable development in the U.S.-Mexico border region and bring together institutions focusing on the border environment. The over-arching goals of Border XXI are to “ensure public involvement,” “build capacity and decentralize environmental management” and “ensure interagency cooperation” (U.S. Environmental Protection Agency 1996, II.1).

The other organizations include the North American Development Bank (NADBank) and the Border Environmental Cooperation Commission (BECC). The NADBank raises and manages funds for environmental regulation on the U.S.-Mexico border. The BECC fosters preservation, protection and enhancement of the U.S.-Mexico border environment and environmental infrastructure,³⁶ focusing mainly on water issues. Although the BECC is mainly a technical assistance and coordination agency, it is affecting public policymaking in the border region through requirements for public participation and transparency (Mello Lemos and Luna 1999).

³⁶ For more information on these organizations, the CEC, NADBank, and BECC, see authors such as Pierre Marc Johnson and André Beaulieu (1996), Spalding and Audley (1997), Varady et al. (1996), Mumme (1994).

The BECC-NADBank arrangement and the Border XXI accord have both embraced the goals of *municipio* capacity building and decentralization in their respective mandate areas (BECC 1996; USEPA 1996). These agreements, particularly the NAFTA-related protocols, have generated millions of dollars in environmental infrastructure investment and an institutionalized process for developing investments using sustainable development criteria for the border region. They have also generated a growing number of cooperative binational actions at the federal, state, and local government levels, in addition to binational actions taken by citizens themselves that aim at environmental improvements border-wide or in specific localities within the border region.

Finally, with the ratification of NAFTA came an improved commitment to environmental management of transboundary pollution problems, including environmental agreements to strengthen bi-national capacity for managing these problems. NAFTA included an environmental side agreement, the North American Agreement on Environmental Cooperation (NAAEC) and the Commission on Environmental Cooperation (CEC), designed to supplement the environmental provisions and objectives of NAFTA. The CEC, specifically, promotes pollution prevention policies and practices and advocates transparency and public participation in environmental protection. By virtue of its very existence, CEC has helped reshape the policymaking process in the border region, however just how great of an affect CEC will have in influencing decision-making is yet to be seen (Wilder 2000).

How these international agreements specifically impact sub-federal environmental and water policies will be address in the case study chapters. Chapter five takes a look at Sonora, examining the decentralization of environmental and water policies within the

state, along with social, economic, and political elements that impact the policies.

Chapter six attempts to do the same thing for the state of Baja California. However, first chapters three and four lay out the research design and reasons for exploration of Sonora and Baja California.

Chapter 3:
Research Design: Approach to Studying and Factors Affecting Decentralization

Within the last decade, a number of scholars have looked at decentralization within Mexico. A valuable area of discussion looks at the factors that affect decentralization: political, social and economic. Rodriguez and Ward (1992, 1994) suggest Mexico is moving toward greater decentralization and argue that it was the opposition government, the PANista municipal presidents, who first insisted upon implementation of greater decentralization. According to these authors, this explains why states with Partido Acción Nacional (PAN) (National Action Party) officials were the first to decentralize. In a similar fashion, Espinoza Valle (1999) and Pineda-Pablos (2001) purport that *alternancia*³⁷ within sectors of the Mexican system has increased decentralization. These scholars suggest that increased competition between political parties, and the changing of the party in power creates an atmosphere supportive of decentralization efforts. Willis et al. (1999) and Garman et al. (2001) also suggest the importance of political elements, however they make the argument that political elements within Mexico have actually deterred decentralization.³⁸

Exploring the impact of social and economic elements when discussing Mexico's decentralization, Rubin (1996) demonstrates how cultural practices and political ideology

³⁷ *Alternancia* is the alternation of parties in elective office.

³⁸ According to these authors, features of the constitution (particularly powers given to the President), elements of the electoral system (including no reelection) and characteristics of the political party system (traditional on-party dominance) have made Mexico's process of decentralization less successful than other Latin American countries.

have played roles in shaping regional and national politics. Fox and Aranda (1996) conclude from their study on community participation with Municipal Funds Program in Oaxaca and Chiapas, that institutional structures, built from the region's traditional cultures, can not be ignored when exploring decentralization in Mexico. Similarly, Haber (1994) and Fox and Moguel (1995) explore regional popular movements' influence on politics and leadership and suggest how these affect the decentralization process. As for the economic factors that affect decentralization, Harris (1983) believes Mexico's decentralization has been "retarded" by the lack of financial resources for the municipal governments and Espinoza Valle (1996) mentions state and municipal governments' lack of authority over financial resources as a detriment to the effectiveness of Mexican decentralization.

Overall, scholars suggest that the process of Mexican decentralization has been determined by combinations of the country's, states' and municipalities' needs combined with capabilities, in addition to social, economic, and political factors. Thus, when exploring decentralization in Mexico, it is important to look at a range of these possible influences. It is also necessary to recognize and distinguish which part of the process of decentralization is being studied: formal decentralization, the law and other legal aspects, or actual decentralization, the implementation of the decentralization process. In order to gain a more complete understanding of Mexico's environmental decentralization, this study looks at both formal decentralization and the actual progress of decentralization, and how each is affected by a multitude of factors.

Approach to Studying Mexico's Environmental Decentralization

Rodríguez (1997, 6) notes there is no specific paradigm or theoretical model that guides the process of successful decentralization. In a similar fashion, David Harvey observes (1996) that every environmental project is simultaneously a social, cultural, and political-economic endeavor and thus can be addressed from a variety of perspectives. With this in mind, I suggest that in order to pursue research on Mexican environmental decentralization, it is necessary to recognize the variety of factors that combine to support decentralization. Thus, it is essential to apply an "interactive approach," looking at a number of forces and their complex interactions. With an interactive approach it is possible to understand how elements influence one another and influence the process of decentralization. For example, it is clear that the structure of the government affects the process of decentralization, but it is also necessary to understand that governments have varying degrees of influence depending on the society in which they are embedded. Political, economic and social factors continually interact and mold one another.

For Mexico examination of not only the political system, but also economic and social influences is essential for a more complete understanding of state-society relations. This method of study takes into account not only what the formal political systems are doing, but also how informal actions taken by society and economic decisions impact the government's decentralization policies.

Interactive Research Approach

Within the past few decades, a state-oriented approach to comparative study has attracted considerable attention. Working from this perspective, yet expanding it, a few

scholars have attempted to work with a state and society approach (Giddens 1982; Migdal et al. 1994; Grindle 1997). This approach suggests that states are parts of societies, they help mold, but are also continually molded by the societies in which they are embedded. Thus, state's relative effectiveness is related to the varied forms in which state-society relations are interwoven. Additionally, political outcomes may not always agree with what seems to be the overall state's interest, but instead may come from the complex interaction of different levels of government and society and pressures faced with each interaction. Overall this state-society approach not only "brings the state back in" but also resituates the study of states into their social setting, presenting a more encompassing, arguably more balanced, perspective.

Among the scholars who advocate for an interactive research approach is Giddens. Giddens' (1982) structuration theory highlights the importance of the relationship between state structures and the agency of society: individuals and communities. It also examines the dialectic way in which the structure and agents inform one another. Giddens argues that neither structures nor agents have primacy; each is constituted through recurrent practices. Structuration theory captures some of the unintended consequences that many not be obvious without adequate consideration of either the structures or agents. Additionally, it avoids posing a false alternative by portraying one factor as the decisive element for a given outcome. Finally, structuration theory provides a framework for investigating how structural changes at the national, state and local levels and societal responses are mutually transforming. By doing this, it reveals the importance of not only government produced data but also public opinions in evaluating and analyzing government policies.

Migdal et al. (1994) suggest that it is necessary to resituate the study of governments and their actions within the social setting in order to adopt a more balanced perspective and to be continually sensitive to the mutually transforming quality of state-society relations. This is stressed as particularly important for developing nations where the government itself often cannot assure outcomes (Migdal 1994, 11). Finally, Grindle's (1997, 3) assessment of getting good government focuses on the need to move past "too much state" and extreme centralization which have resulted in "stagnant and inefficient economies and political regimes that were unresponsive, authoritarian, and corrupt." However, Grindle balances this with the note that "too little state" is also not good—entities need to have the capacity to accomplish designated tasks. Overall Grindle recognizes the need to deal with social, economic and political elements when addressing governmental changes, both structural and process changes. Without taking all of these elements into account, the focus is on symptoms instead of the true dysfunctions rooted more deeply in political, social and economic contexts.

Interactive approaches such as Giddens' structuration theory, Migdal et al.'s state in society, and Grindle's capacity building for good government are appropriate for researching environmental decentralization in Mexico because evaluation and analysis of environmental decentralization policies requires understanding the complexities of the decentralization process. The concepts of these interactive approaches help disaggregate the how and why behind the complexities of the decentralization process, not claiming primacy for any one factor, but framing the exploration of political, economic and societal influences on the process of decentralization.

Research Design for the Analysis of Decentralization of Environmental Policy

Decentralization of environmental policy is generally defined as the transfer of planning, decision-making, or administrative authority for environmental issues from the central government to its field organizations, local administrative units, semi-autonomous and parastatal organizations, local governments, or non-governmental organizations. This is a procedure that increases the number of people involved in the management of and/or decision-making for environmental policies. Increasing the number of people involved in the process can be achieved through simply adding to the number of governmental officials (at one or more levels) that are a part of the decision-making or administrative aspects of environmental policy or by allowing the public greater participation.

Mexico's federal environmental agency, Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) (Secretariat of Environment and Natural Resources), defines decentralization as

...un proceso de transferencia de atribuciones funciones y recursos, desde el gobierno federal a los gobiernos estatales y municipales; y en una extension del término, consideramos que la *decentralización* se refiere también a la transferencia de funciones y recursos a organismos del sector privado y social (SEMARNAT 2001, 2). (...a process of transferring functions and resources from the federal government to the state and municipal government; and, extending the term, we consider that *decentralization* refers also to the transferring of functions and resources to organizations within the private and social sectors.)

When specifically discussing decentralization of environmental policy, SEMARNAT states that it is a priority to strengthen the administrative and political power of the state and local governments and to strengthen their abilities to deal with environmental management. SEMARNAT submits that since 1996 it has been working towards these

goals. Their progress in the decentralization process is evident in such actions as the signing of cooperative agreements, institutional development, and efforts to integrate the process of decentralization with regional programs aimed at enhancing sustainable development (SEMARNAT 2001).

Despite SEMARNAT's suggestion that there are three distinct ways to show their decentralization of environmental policy, there are no universally accepted criteria for evaluating and analyzing decentralization. In fact it is extremely difficult to evaluate and analyze decentralization due to the need to hold various determinants of local autonomy constant (Smith 1979, 1985; Werlin 1998). Smith (1985) and Wolman's (1990) state that there are no single operational definitions that can capture the conceptual meaning of decentralization, however, it is suggested that "clever analysts should be able to devise acceptable [ways] to measure it" (Wolman 1990, 41). Taking this to heart and understanding the need to explore both formal decentralization and implementation of decentralization, this study applies a structuration theory, state-society approach to both evaluating legal aspects of environmental decentralization, and assessing the implementation of environmental decentralization. The evaluations and assessments come from a variety of sources in an attempt to accurately reveal formal and informal influences on the adoption and implementation of environmental decentralization.

Formal Decentralization

In order to analyze and evaluate formal decentralization, this study looks at official data: state and municipal laws and *reglamentos* that grant responsibilities and lay the groundwork for the implementation of decentralization of environmental policy.

Environmental laws and statutes establish a legal framework for defining the powers and responsibilities of each level of government and helping maintain each government's separate domain. They also establish a structure to follow and put authority behind governments' movements toward implementing decentralization. In other words, this study explores the existence of constitutional principles that preside over the distribution of resources and functions among the federal, state, and municipal levels of government, and in doing so create an enabling environment for the process of decentralization.

Implementation of Decentralization

This study also examines decentralization by exploring the implementation of environmental policy decentralization. Analyzing and evaluating the implementation of environmental policy is not as straight forward as looking at laws. This type of work calls for gathering of information from the public, academics and politicians about progress towards realization of components within the decentralization legislation. Statements concerning perceptions of implementation or steps towards implementation will reveal more of the actual situation, instead of government numbers that merely reflect a small piece of the whole story.

Past work has analyzed and evaluated implementation of decentralization most frequently through the public administration and finance approaches. Within these, the primary concerns have been with specific decisions about political processes, organizational structures, and fiscal resources. More specifically, evaluations have been made of the following: the range and importance of functions performed by sub-national governments; the autonomy given through legal relationships between national and sub-

national governments; the extent to which sub-national governments are able to acquire and freely utilize public-sector resources; the sub-national government's degree of fiscal independence; the number and quality of bureaucrats appointed by the central government and employed with federal field offices; and the number and quality of personnel both elected by state or local residents and appointed by state or local governments working within a given capacity (Smith 1979; Rondinelli et al. 1984; Wolman 1990, 37-41; Rodríguez and Ward 1994).

This work attempts to analyze and evaluate implementation of decentralization by gaining information on many of these areas from interviews with government personnel, academics and NGO officials. Those interviewed describe their view of the range and functions performed by sub-national governments; degree of autonomy of state and municipal governments, and ultimately the point at which the Mexican states and municipalities are within the process of decentralization of environmental policy. Although suggested by some scholars, this study does not use fiscal indicators as a means of directly assessing the implementation of decentralization. First, within Mexico discovering this information is quite difficult and most scholars investigating decentralization efforts have piggy-backed on other existing financial supports at the sub-national level. Second, quantitative assessments such as budgeting allocations for decentralization are at best only partial measures of implementation, although fiscal commitments do help build capacity for decentralization through the creation of an environment supportive of the process and existence of resources that could be utilized. That said, budgets are considered, but they are taken as a piece of the larger picture, and as an indicator of the situation instead of a factual definition of fiscal distribution.

Overall a more encompassing state-society approach based not on numbers, but rather on a painting of the situation as a whole, is utilized in order to have a more complete understanding of all aspects of decentralization of environmental policy.

Factors Affecting Decentralization

As previously noted, the outcome of a country or states' decentralization of environmental policy and management is influenced by a number of factors: political/institutional, economic, and social. In addition to these previously discussed factors, it is also suggested that geographic and demographic characteristics affect decentralization. Work by Vieira (1967), Rondinelli et al. (1984), Smith (1985, 95-97), and Rondinelli et al. (1989), among others, hypothesizes the importance of various combinations of the political and institutional, economic, social, geographic, and demographic factors. These scholars submit that, although not independently sufficient to generate either formal decentralization or the implementation of decentralization, these factors add to the building of capacity for advancement in the process of decentralization. In other words, they add to the creation of an enabling environment, human resource development and institutional development, all of which, as noted in chapter 1, are useful in accounting for outcomes of environmental policies. This section examines how political, economic, social, geographic and demographic factors affect capacity building and thus affect the processes of formal decentralization and implementation of decentralization.

Formal Decentralization and Implementation of Decentralization

Political, economic, social, geographic and demographic influences can either facilitate or impede decisions to adopt and to implement decentralizing measures for environmental protection. No single factor independently guarantees decentralization legislation or the implementation of decentralization legislation, and all interact with one another. Yet each element or characteristic is potentially influential.

Political and institutional factors include the existence and strength of federal, state and municipal institutions; the existence, viability and influence of political opposition parties; the acceptance of public participation; and reactions to international pressure. These factors can affect the development of legislation, human resources, and managerial systems. The introduction of “new blood” into a system at sub-national levels, the election of opposition party officials, can work to strengthen managerial abilities at these sub-national levels. Members of opposition parties, parties that generally do not threaten conflict at federal, state or local executive levels, often are the first to begin to press for developing a framework laying out newfound rights and responsibilities (Rodriguez and Ward 1994). More specifically, officials from the governing party may feel dependent upon their party for professional advancement and future job placement. If this is the case, these officials are more likely to follow the party line and maintain the status quo instead of pushing for decentralization. Conversely, officials from opposition parties, in an attempt to separate themselves from the federal government and its ruling party, often seek to have their agencies and institutions working as entities independent from the central government and majority party. And they are more likely to push for recognition of greater rights and responsibilities. These

both enhance the experience of state and municipal officials and improve managerial systems at the sub-national government level.

As an example, in 1992 in the Mexican state of Baja California, the opposition party PAN won the gubernatorial election. Shortly thereafter, PAN management teams made striking changes in a number of public works projects including administrative and budgetary restructuring of the water agencies (Pineda-Pablos, unpublished). The PAN developed an infrastructure specifically for the needs of the local region, often ignoring the “suggestions” of the National Water Commission. By implementing their own regulations instead of feeling compelled to follow the federal government’s suggestions, these opposition party officials gained expertise improving the efficiency of state and municipal water agencies, allowing elected officials more time to work on improving the management of other programs.

Opposition political parties are also of interest because research has shown that it is generally the opposition governments that recognize the need to take advantage of the possibilities opened up by political projects to counteract centralization (Rondinelli et al. 1984; Rodriguez and Ward 1994). Within Mexico, although municipal reform was designed to fundamentally change the character of intergovernmental relations within all of Mexico’s states and municipalities, the federal government promoted reform only in select states and municipalities—those where opposition parties had seen success. This paradoxical action taken by the Partido Revolucionario Institucional-led (PRI) (Institutional Revolutionary Party) federal government was based in the belief that supporting decentralization within states with strong opposition parties would help to improve the PRI image within those states (Rodriguez 1997). The PRI believed that

supporting decentralization and passing-off limited responsibilities to opposition led governments would make state and municipal governments more representative. Their constituents would feel as if they had more control, thus hopefully promoting and improved the PRI's image without surrendering much power (Rodriguez and Ward 1994). Consequently, the writing of decentralization legislation, the creation of an enabling environment, was encouraged by the PRI in precisely those states in which the opposition parties gained strength.

Other political and institutional factors include the acceptance of public participation and international influence. Public participation,³⁹ “direct face-to-face involvement of citizens...in decisions that affect their own welfare” (Carroll 1992, 78),⁴⁰ affects a government's legitimacy. This affects the institutional development element of capacity building, not only by fostering participation but also by improving the public's perception of government institutions. International forces can pressure governments to disseminate responsibilities among the levels of government and to consider, change, instate or implement policies (Rondinelli et al. 1989; OECD 1994). Examples of such incentives include the shift toward greater decentralization within Mexican policies due,

³⁹ The concepts of public participation, democratization and decentralization are all very interrelated, but are also distinct phenomena. Public participation can include any process that creates opportunities for the public to voice their concerns. Democratization is a changing of the rules of political competition and a shifting of power to “the people”—either the people themselves, or their elected representatives. Decentralization is a procedure for increasing the number of people involved in the political process. It does not address a changing of rules of political competition and can be non-democratic and lacking in real public participation if the increase in participation is simply an inclusion of another group of political elite. As Fox (1994, 106) notes, “Decentralization does not necessarily involve the democratization of local government...In Chile, for example, General Augusto Pinochet's military dictatorship gave huge policy responsibilities to appointed mayors.”

⁴⁰ There are many definitions and subtle distinctions within scholarly work on public participation. Furthermore, what I refer to as “public participation” other scholars call “citizen participation,” “public involvement,” or “citizen involvement.” See for example Langton (1978). However, as discussed by Graves (1996), there is no particularly good reason to adopt one term over the other, except that non-citizen residents can also work to influence governmental politics. Therefore, in this work, this concept will be referred to as “public participation.”

in part, to the North American Free Trade Agreement (NAFTA), the World Bank and International Monetary Fund's packages that tied funding to the redistribution of responsibilities within a country (particularly transferring programs to sub-national governments and privatization of government-owned companies), and the Interamerican Development Bank and World Bank funded development grants that gave money specifically to develop municipal governments (Nickson 1995; Willis et al. 1999). Each of these uses incentives, generally funding, as a method of motivation, to build greater capacity for decentralization.

Economic factors affecting decentralization include the average income within a state, the major economic sector (agricultural, industrial or service), the state's gross domestic product (GDP), and the state and local governments' budgets. These factors, and the society's associated ability to take risks, often determine the types of policies supported by the citizens—wealthy industrial cities generally support greater independence from government, lower taxes, and less intrusive land-use policies, whereas towns comprised of subsistence farmers will be more likely to support government programs, farm subsidies, and health programs (OECD 1994). Additionally, economic influences may dictate the types and numbers of trained personnel with skills to help maintain decentralization, and the amount and availability of, particularly fiscal resources for decentralization (Vieira 1967; Rondinelli et al. 1984). State and local governments with access to a larger tax base and thus to greater funds, technology, training possibilities and other resources can more easily support the development of their own decentralization policies. Harris (1983, 195-6), discussing the importance of funds for capacity building and decentralization in Latin American notes,

...their limited funds make it impossible for them to improve their administrative capacity. Their limited administrative capacity, in turn, discourages the allocation of new functions, for fear that they will not be able to carry them out effectively or use the funds given to them efficiently. Finally, their limited administrative capacity greatly hinders their ability to levy and collect taxes or mobilize their own sources of revenue.

Social influences are found in a community's history and culture. These factors encompass a society's values, traditions, and priorities, and may include attitudes towards the phenomena of corporatism and democracy. Furthermore, a society's history and cultural heritage define how a problem is identified and solved, and a society's willingness and ability to change is also deeply embedded in culture (OECD 1994). It is important to look at these factors because the attitudes, values, and traditions can either help or hurt the development of policies such as decentralization (Vieira 1967; OECD 1994; Fox and Aranda 1996). For example, as seen in Fox and Aranda's (1996) study of indigenous communities in Oaxaca, societies with a developed tradition that supports democratic decision-making are more supportive of decentralization than other communities with similar resource endowments and development potential. These communities expect local citizens to have a say in the creation of policies that will influence their region. Thus, decentralization is a natural process for them, they have already developed their enabling environment and they have the attitudes needed for further development. Conversely, in communities within Chiapas that are similar to those in Oaxaca, but that lack a history and tradition of strong, overarching, regional control and public participation, the foundations for supporting the development of decentralization policies is missing and thus there is a lower likelihood for a substantial movement for decentralization of policies (Fox and Aranda 1996; World Bank 1997).

Public participation also falls within the realm of social influences. The public's participation can facilitate or impede the implementation of policies. From the citizens' view, the desired result of public participation is greater government responsiveness and more diverse voices within policy-making institutions. Both of these results, when successful, influence the institutional development element of capacity building by mobilizing greater public support for particular policies. Along these lines, Vieira (1967, 11) notes that public participation is an important element of capacity building for decentralization because

financial and technical means may be available to municipalities; and yet they may not provide...services since absence of popular participation neutralizes all efforts. Consolidation of local resources for solution of common problems is also hampered by lack of participation.

In fact, countries that have attempted decentralization programs⁴¹ have almost always connected decentralization with the overall objective of capacity building through increased political participation (Teune 1982; Rodríguez 1997). For example, neighborhood decentralization programs in the United States and Britain were closely associated with encouraging citizen participation in decision-making under the belief that communities could strengthen their abilities to solve local problems if the involvement of community members could be engaged (Smith 1985, 167). Likewise, Rondinelli and Nellis (1986) explain how participation has enlarged the capacity of local administrative and political leaders to pressure central government agencies.

Geographic factors include topography and the physical location of states.

Topography and the locality of geographic barriers such as mountain ranges or vast

⁴¹ By the 1970s most industrialized countries had begun tentative efforts for deconcentration and progressed toward more developed decentralization in order to decentralize their economic policies and public administration apparatus.

deserts impacts ability to influence and govern and thus can either create greater capacity for decentralization or limit capacity for decentralization. If the geographic barrier is between the capital city and the state or municipality in question, the sub-national's capacity for decentralization can increase due to less contact with the federal government. Minimal contact with the federal government reduces reliance on, among other things, experts and other human resources from the federal level. Thus the sub-national entities are forced to gain practical experience and in doing so, develop their own human resources and strengthen their managerial system. On the other hand, if a geographic barrier splits the state in question, it can limit the capacity for decentralization by increasing the difficulty for citizens and sub-national representatives to meet.

Location, specifically the distance from the capital city, plays a role in the amount of attention the community receives from the central government. Liverman et al. (1999) state that location far from national capitals and the political patronage, decision-making structures and financial-support levers, often result in the border states being assigned low priority. Bahl and Linn (1994) make a similar note within their article on fiscal decentralization. They state, "A second influence on fiscal decentralization is country size: The larger the country, the greater the [potential] degree of [defacto] decentralization" arising from regional isolation from the national center (1994, 5). As noted by Maddick (1963, 38) in less-developed⁴² countries, decentralization has often been associated with the inaccessibility of remote regions. In the case of Mexico's northern border, geographic location is important because the governments are somewhat ignored and thus receive less direct pressure from the federal government. However,

⁴² In this case, Maddick (1963) refers to countries that are lacking conveniences such as modern systems of communication as the "less-developed" countries.

being neighbors with U.S. states, these sub-national governments do receive more international pressures.

A final category of factors that affect formal decentralization is demographic characteristics. Vieira (1967) and Wallis and Oates (1988) suggest that population size and density, along with the number of municipalities in a state and the percentage of urban population, affect decentralization. These factors influence the capacity for implementing decentralization policies because larger populations, more densely packed populations and greater urbanization all bring about greater chances of having experts and knowledgeable personnel within the civic body, thus improving human resource development⁴³. Conversely, rural populations are more dispersed and generally poorer, less articulate and disorganized (Parker 1995). Furthermore, these same factors make it easier for a large number of people to come together and demand local representation, impacting institutional development. These factors clearly overlap with, among others, social elements, re-emphasizing the fact that all of the factors influence one another.

The purpose of looking at these factors is to systematically explore the influences these factors have on, not only one another, but also on capacity building for environmental decentralization and outcomes of environmental policy in Sonora and Baja California. By understanding the elements of capacity building, and how these may be affected by the aforementioned factors, we can gain a better understanding of the influences on the adoption and implantation of environmental decentralization within the

⁴³ There is no study that conclusively supports these suggestions, for example, Vieira's (1967) study did not find a significant correlation between decentralization and size of population, density of population or urbanization. However, a number of authors, including Smith (1985, 70), have suggested possible correlation by using an economies-of-scale argument. Also Wallis and Oates' 1988 study did find that the extent of fiscal decentralization varies inversely and significantly with both population size and urbanization. Therefore, although there is not indisputable evidence linking these factors to decentralization, many authors suggest the connections do exist.

Mexican states of Sonora and Baja California. In order to do this, the next section examines basic information concerning the two case studies, exposing similarities and differences between the chosen states, as necessary for comparative studies.

Sonora and Baja California, Case Studies

Sonora and Baja California make apt case studies due to their similarities and differences: geographic location and elements of the economic and social structures, and components of their political systems, demographic characteristics, and some aspects of the economic and social systems.

One clear similarity between Baja California and Sonora is the geographic location of the two states. Baja California and Sonora border each other. This proximity indicates that the two states share major geographical features such as the Sonoran desert and the Gulf of California, in addition to a number of environmental conditions and natural resources. Moreover, both states are equally far from Mexico City and the federal government officials who reside there. As previously mentioned, this is important because often those states or provinces located far from the political center of the country are ignored by the central government (Eckstein 1989, 22). Furthermore, Baja California and Sonora are also both located on Mexico's northern border, and thus face the associated benefits and drawbacks.

Baja California and Sonora also manifest similarities within their economic and social structures. For example, both of these states boast a well-developed *maquiladora*⁴⁴ industry and a high GDP per capita. Additionally they both have high levels of literacy

⁴⁴ *Maquilas* (maquiladoras) are product assembly factories, the majority of which are located in Mexico's northern border region.

and low percentages of the population speaking an indigenous language. Likewise, as in much of Mexico, the culture of corporatism is strong in both of these states. Finally, a tradition of creeping democratization is found in both of these states, although as corporatism and democratization do not work well together democratic practices have not been fully consolidated in either state. Overall, the similarities between these two states allow for a number of elements to be held “constant,” facilitating a comparison of the adoption and implementation of their respective environmental policies.

Just as there are numerous similarities between the states of Baja California and Sonora, there are also a number of differences. As previously noted, the differences between Baja California and Sonora include political systems, demographics and elements of the economic structure. When looking at the political systems, or more specifically the legal-statutory aspects of the political system, Baja California counts more environmental laws and regulations on the books than does Sonora where comparable legal documents are more often “in process” or do not exist. Also, the political systems of Baja California and Sonora vary due to the fact that the ruling political party politics differ between the two states. Although both states are noted for their opposition parties, in Baja California there is a greater presence of opposition parties than in Sonora where the PRI maintains a higher level of control. Finally, the number of NGOs, allowing citizens more modes for participation, is greater in Baja California than Sonora.

Demographically the number of *municipios* and percentage of population living in urban versus rural areas vary between Baja California and Sonora. In Baja California, there are only five municipalities whereas in Sonora there are seventy-two. In Baja

California, eighty-four percent of the population lives in the cities and there are an average of thirty-five habitants per km², making the urban areas both larger and denser than in Sonora where only about seventy-two percent of the population is urban, cities are physically smaller and there is an average of only twelve habitants per km².

Finally, important economic differences between Baja California and Sonora are seen in the percentage of activity that occurs in the various economic sectors and the design of the federal-state-municipal budgets. Baja California has more extractive industry and tourism while Sonora has more agriculture, although as previously mentioned it also has *maquiladora* industry and substantial service industry.

Table 3.1: Case Studies

| | Baja California | Sonora |
|--|---|--|
| Geographic Location | U.S.-Mexico border; borders California | U.S.-Mexico border; borders Arizona |
| Number of <i>Municipios</i> | 5 | 72 |
| Major <i>Municipios</i> | 1. Ensenada 2. Tijuana 3. Mexicali 4. Tecate ⁴⁵ | 1. Hermosillo 2. Cajeme 3. Nogales 4. Navojoa ⁴⁶ |
| Population^a | 2,487,367 | 2,157,000 |
| Percentage urban (>14,999 habitants) | 84% urban | 72% urban |
| Percentage rural | 16% rural | 28% rural |
| Density (habitant/km ²) | 35 habitantes/km ² | 12 habitantes/km ² |
| Literacy Rate^a (> 14 years) | 96.3% | 95.5% |
| Males | 96.8% | 95.5% |
| Females | 95.8% | 95.5% |
| % Population with Water/Sewage System Coverage^a | Water system: 89.4% Sewerage system: 81.9% | Water system: 91.6% Sewerage system: 79.2% |
| % Over 5 Years that Speak an Indigenous Language^a | 1.4% | 2.5% |
| Governor's Party Affiliation | PAN (Tijuana, Mexicali and Playas Rosarito have PAN mayors) | PRI |
| Legislature Majority Party | PAN with coalitions | PRI |
| Type of Economy | Home to 40% of Mexico's <i>maquiladoras</i> ; also tourism | <i>Maquiladoras</i> , but also substantial agricultural |
| % in Economic Sectors^b | | |
| Primary Sector | 5% | 17% |
| Secondary Sector | 34% | 25% |
| Tertiary Sector | 55% | 56% |
| Ranking of State GDP (within Mexico)^a | 9 th | 7 th |
| GDP per capita^c (US \$) | \$5,607 | \$5,674 |
| Public Participation | Diverse NGOs; BECC | Limited NGOs; BECC |
| Tradition of Corporatism | Yes | Yes |
| Existence of Municipal Environment <i>Reglamentos</i>^d | 5/5 (100%) | 5/72 (7%) |

^a INEGI. 2000. *Estados Unidos Mexicanos. XII Censo General de Población y Vivienda, 2000. Tabulados Básicos y por Entidad Federativa. Bases de Datos y Tabulados de la Muestra Censal.*

^b These numbers are from INEGI. 2000. *Dirección General de Estadística. Dirección de Estadísticas de Corto Plazo. Encuesta Nacional de Empleo, 2000.*

^c These are 1999 figures from INEGI 2000.

^d The number of *reglamentos* was determined during fieldwork, fall 2000.

⁴⁵ Seventy percent of the state's population lives in the first three municipalities. This area is the most populous and rapidly growing region of the border.

⁴⁶ Hermosillo and Cajeme each contain more than seven percent of the state's population, all other *municipios* have less than 6.5 percent of the state's population.

This general depiction of Sonora and Baja California functions as a base from which to develop an understanding of the two states and their possibilities for decentralization of environmental policy. The method utilized to complete this examination is described below.

Methodology

This project utilizes case studies, taking the concepts of an interactive research approach, utilizing fieldwork to gather information, and employing the Most Similar Systems (MSS) approach to answer questions about decentralization in environmental policies within the states of Sonora and Baja California. As noted by Lijpart (1971), the case study approach allows researchers to focus on a single case, or a few cases, that can be intensively examined even when research resources are relatively limited. Thus, the case study method allows for the exploration of a variety of influences and encourages the development of in-depth comparison between two or more cases. Comparing case studies in depth, following Yin's (1989) argument, allows one to better examine the policy *process* and since this research examines the *process* of decentralization within Mexican environmental policy, a method that explores a process instead of a picture frozen in time works well for the purposes of this study.

The case study approach utilized the interactive research approach, most precisely Giddens' structuration theory, which calls for explanatory case study methodology. Application of structuration theory necessitates an exploration of social, economic and political elements within the cases. By shedding light on all of these aspects, we gain a

more complete understanding of what affects the process of decentralization. In order to gather this diverse information, field research was essential.

To develop the case studies this project required field research in Mexico. Field research allowed access to primary sources and often hard to access from outside Mexico. Furthermore, while the formal mechanics of Mexico's political system can be readily found in numerous government documents, periodicals, and scholarly literature, data on how the system functions *informally* is less accessible. For this researchers must rely on conversations and interviews with public officials, academics and NGO personnel. Field research included interviews that revealed influences not identified in other sources.

Finally, the research design takes the concepts from structuration theory and combines it with the MSS approach (Przeworski and Teune 1970; Teune 1982). The MSS approach focuses on intersystemic similarities and differences and is based on the belief that cases as similar as possible with respect to as many factors as possible constitute optimal samples for comparative inquiry. The MMS attempts to isolate influence between factors through eliminating as many extraneous factors as possible. This is achieved by attempting to maximize the number of shared characteristics and minimize the number of characteristics that differ between the cases. Consequently, if important differences are found among otherwise similar cases, the number of factors attributable to these differences will be sufficiently small, making it possible to suggest causes for variations. The differences that surface are then determined to be relevant factors and possibly explanatory. In other words, common systemic characteristics are regard as "controlled" whereas intersystemic differences are regard as explanatory factors.

As previously discussed the cases of Baja California and Sonora share numerous similarities, yet exhibit a number of differences that may account for variation in the outcome of environmental decentralization. Thus, this research explores possible causes for variation in the decentralization of environmental policies between these two Mexican states by suggesting:

1. The factors that are common, such as peripheral status, are irrelevant in determining the decentralization of environmental policy since different patterns of behavior are observed between the two states sharing these factors.
2. The type and number of environmental laws within each state, along with other factors that differentiate the states, can be considered as explaining the differing pattern of environmental policy decentralization of the two states (Przeworski and Teune 1970).

A detailed examination of the influences on the adoption and implementation of environmental decentralization in both states allows for a better understanding of environmental decentralization within Mexico. However, in order to extrapolate from the two case studies and make inferences for Mexico's northern border region and even for Mexico as a whole, it is first necessary to understand how the states of Sonora and Baja California fit within the larger picture of Mexico's northern border states. This examination will not only shed light on the border states, but will also aid in the explanation of Sonora and Baja California as case studies. The next chapter will examine the factors discussed in this chapter as they apply to Mexico's northern border states.

Chapter 4: Environmental Decentralization at the Border: An Overview

In order to understand how the states of Sonora and Baja California fit into the larger picture of Mexico's northern border region, it is necessary to gain an understanding of characteristics of all of Mexico's northern border states. This chapter begins with a brief description of the growing importance of Mexico's northern border region, continues with an assessment of the factors, examined in chapter 3, that affect decentralization, and ends with a discussion of the similarities and differences among Mexico's northern border states, and the current state of decentralization within the region.

Increasing Attention for Mexico's Northern Border Region

The Zedillo administration gave unprecedented attention to strengthening the role of the state and municipalities in various policy sectors, including environmental policy. It appears as if the Fox administration is doing the same, moving forward in the process of decentralization. Since 1990, a substantial amount of the downward transfer of administrative responsibilities has been directed at the environment. This newly emerging and ongoing decentralization makes Mexico an excellent case for investigating the decentralization process.

Within Mexico this work focuses on environmental and water policies along the U.S.-Mexico border region. Since 1992 the border environment has received special attention from national and international bodies. This is due to several interlocking

factors: the delicate, arid conditions that tend to prevail in the border regions, rapid population growth, increasing stress on the limited resources of the region, and political pressure emanating mainly from the U.S. Additionally, the last decade's particularly harsh weather conditions have exaggerating the normally harsh living conditions, intensifying natural resource shortages, and thus drawn even more attention to a once largely ignored region.

Recent growing recognition of the U.S.-Mexican border's fast growing yet environmentally underserved status has both helped and harmed Mexico's northern border region. With the passage of the North American Free Trade Agreement (NAFTA) in 1994, the number of *maquiladora* industries within the border region rapidly expanded, accentuating population growth, demanding natural resource extraction and occasionally generating pollution-creating practices. The recent growth within the border region, including populations more than doubling in the last decade and matching industrial and agricultural growth, has taxed most of the region's rivers and groundwater sources, increasing salinity levels and decreasing water quality and quantity; devastated sections of land, decreasing levels of biodiversity and increasing erosion; and created serious issues surrounding air pollution. Additionally, the growth has not been accompanied by an expansion of basic services and infrastructure. Consequently, a substantial portion of the population does not have access to necessities such as water or basic sanitation.⁴⁷

⁴⁷ Although officially eighty-four percent of Mexican households are linked to the water supply system and ninety-two percent of those within the northern border states are linked to the water supply system, it has been noted that a substantial portion of these residents do not receive water twenty-four hours a day (Lara and Sánchez 1994).

However, the past decade has also seen some environmental progress within this region. With the passage of NAFTA came the creation of the Border Environmental Cooperation Commission (BECC) and the North American Development Bank (NADBank), bi-national institutions designed to focus on the border environment. Consequently as environmental issues became more acute, and as increased attention and cooperation among governments transpired, the border region has seen greater amounts of international institutional resources directed towards the region and its environmental concerns. This has led to greater awareness on the part of all governments within northern Mexico and thus made environmental policy an issue that is hard to ignore. Together these factors have compelled Mexico's northern border states to be leaders in environmental and water policies and to push for greater decision-making at the state and local levels.

Border States and Decentralization of Environmental and Water Policies

Although all of Mexico's northern border states have formal environmental laws and designated agencies charged with implementing those statutes, the processes of environmental and water decentralization has proceeded slowly and unevenly from a comparative standpoint. This is not surprising when comparing the previously mentioned elements that appear to increase the likelihood of advancement in the process of decentralization: geographical factors such as distance from the capital city; economic factors such as GDP, demographic factors such as population and urbanization numbers; and political factors such as the political party in control and influences from other countries (for Mexico, influence from the U.S.). It is expected that with greater economic

development Mexico's northern border states would experience greater decentralization and municipal capacity in the environmental area. Yet even with the northern border states surpassing most of the rest of the nation in the decentralization process, it is interesting to explore the variation of decentralization within Mexico's northern border states. This section briefly compares a number of elements, that influence the decentralization process, among the border states, highlighting both similarities and differences.⁴⁸

Mexico's northern border states have a number of similarities, including the geographical elements—all of the border states are located far from the central government—and the GDP per capita—which are among the highest within Mexico and surpass the nation's GDP per capita, although there is some variation among the states. Additionally, Mexico's northern border states are all considered fairly urbanized, and the region as a whole has been internationally recognized as an important bioregion—another reason Mexico's border region is under scrutiny from international influences. Finally, all of Mexico's northern border states abut the U.S. and thus are exposed to pressures from U.S. government officials, non-governmental organizations, and economic actors, among others.

Differences among Mexico's northern border states include variation among the number of municipalities within each state, federal expenditures for municipal strengthening, gross state revenue as a percent of gross national revenue (per capita), political party of the governor's office, and percentage of states' municipalities and

⁴⁸ It is important to recognize that when comparing cases, it is the combination of all types of factors that create variation in processes such as decentralization. Yet it is also useful to explore certain factors to see how they specifically can impact the process.

population located within the border zone⁴⁹. These elements can shed some light on the variation within the process of decentralization of environmental policies, in this one case encompassing both environmental and water policies, within Mexico's northern border states. Exploration of these differences in addition to the importance of cross-border cooperation for the development of decentralization of environmental policies will showcase the variety of decentralization along the border, and thus direct the selection of two states upon which to focus the detailed study. The assessment will begin by looking at environmental legislation, a fundamental indicator of decentralization.

Border States' Legislation

At the formal level it is evident that Mexico's northern border states have developed implementing statutes giving force to state environmental laws. Within the context of Mexican public administration, the development of such regulatory laws and standards is an important if not always essential precondition for the development of *municipio reglamentos* and policies for environmental protection. The northern border states are leaders in this regard. Mexico's northern border states responded most rapidly and effectively to *conurrencia*. They were among the first to write legislation, creating an enabling environment and laying out their rights and responsibilities for environmental and water decentralization. Moreover, the northern border states were among the first to sign decentralization framework agreements. These agreements established the basis for further specific agreements to transfer federal agency-led functions to the states and *municipios*.

⁴⁹ The border zone is defined as 100 km from either side of the border. This definition was defined in the 1983 La Paz Agreement and is used as the basis for U.S.-Mexican environmental cooperation on the border.

Despite this regionally rapid response to beginning the decentralization process, there is still considerable variation among the environmental legislation within the northern border states. This variation is not obvious when looking specifically at the state decentralization legislation—every northern border state enacted decentralization legislation within a relatively short period of time. However, if we consider *municipio reglamentos*, it is possible to see clear differences in decentralization (see Table 4.1).

Table 4.1: Legal Frameworks for Environmental Policy in Mexico's Northern Border States^a

| State | Year State Environmental Law Enacted | Number of Municipalities with Environmental <i>Reglamentos</i> and Total Number of Municipalities | Percentage of Municipalities with Environmental <i>Reglamentos</i> |
|-----------------|--------------------------------------|---|--|
| Baja California | 1992 | 5/5 | 100% |
| Sonora | 1990 | 5/72 | 7% |
| Chihuahua | 1991 | 8/67 | 12% |
| Coahuila | 1990 | 3/38 | 8% |
| Nuevo León | 1989 | 22/51 | 43% |
| Tamaulipas | 1991 | 3*/43 | 7% |

^a Sources: Interviews and email correspondence with SEMARNAP officials; Chihuahua information from www.e-local.gob.mx/enciclo/chihuahua/Mpios/municipios.htm (accessed January 26, 2003).

*Within the state of Tamaulipas, those interviewed could not give a definitive number of *municipios* that have *reglamentos*. Thus, the number may not reflect all of the *municipios* with *reglamentos*, however it is close. Additionally, it is accurate enough to show that Tamaulipas does not have much decentralization.

Although *municipio* decentralization legislation does not directly measure the state level of decentralization, it can be taken as an indirect measure due to the interconnections between these levels of government. For a *municipio* to put forth decentralization legislation, they need to have some degree of support from the state level.⁵⁰ This, therefore reflects not only the state government's backing for decentralization but also a feeling on the part of the state government that they have decision-making power that

⁵⁰ Granted it is possible for a *municipio* to enact decentralization legislation without much support from the state, this takes a lot of effort on the part of the *municipios* and thus will be reflected in the number of *municipios* within a state willing to put out that type of effort.

they can then pass on to the local level (i.e., decentralization). It is through the states instituting decentralization agreements and legislation that the *municipios* are able to make substantial development in their decentralization efforts.⁵¹

Consequently, Table 4.1 shows all of the northern border states have some decentralization—they all have state environmental laws, and at least a few *municipios* with *reglamentos*. The decentralization is not as pervasive at the *municipio* level, with the exception of Baja California, where all of the *municipios* have environmental legislation. Table 4.1 shows a variance in the enabling environment for decentralization of environmental and water policies among the northern border states with Baja California having the greatest enabling environment capacity for decentralization, Nuevo León and Chihuahua in the middle, and Sonora, Coahuila, and Tamaulipas having substantially lower levels of capacity for decentralization.

Number of *Municipios*

The total number of *municipios* that exist within a state impacts the ease at which decentralization can occur. Within Mexico it has been noted that, in relative terms, decentralization is easier to implement in states with a small number of *municipios*, compared to states with large numbers of *municipios* (Rodríguez and Ward 1994, 111). This is logical in that with a smaller number of *municipios*, fewer resources are needed to create capacity for decentralization. Nevertheless, this explanation is somewhat paradoxical because in essence it is a manner of decentralizing by centralizing. It

⁵¹ For the *municipios* to be truly capable for moving forward with decentralization efforts, they need support from both the federal and state levels. Because of how budgets are set up in Mexico and who controls resources, it would be difficult for *municipios* to move forward with decentralization efforts without federal and state support (or at least it would be near impossible if the federal and/or state governments were opposed to the decentralization efforts).

suggests that when the local governments are more centralized, when there is a smaller number of *municipios* and thus a small number of people involved in the policy processes, they are more likely to have the ability to create decentralization legislation and to have the human and institutional resources to implement decentralization programs. Conversely, when there are more *municipio* governments competing for the same resources, it is more difficult for every *municipio* to obtain the resources it needs in order to pursue decentralization. Despite the paradoxical appearance, the important point is that the eventual outcome to be derived from this is progress in the process of decentralization, giving the *municipios* a taste for decentralization and encouraging further decentralization.

Within Mexico, the ease of decentralization can be explained by the distribution of resources. If two equal populations are divided into subgroups, one population into two subgroups and the other into ten subgroups, it will take five times as many individuals to handle programs for the second population as for the first. Similarly, when dealing with governments and environmental and water policies, each additional municipal government necessitates the time and effort from a minimum of one additional skilled individual to write legislation and implement environmental and water policies. Thus a larger number of municipal governments results in resources spread more thinly and trained personnel scattered more widely throughout the state. This explanation can be applied to Mexico's northern border states.

Table 4.2: Number of *Municipios* in Mexico's Northern Border States

| State | Number of Municipalities |
|-----------------|--------------------------|
| Baja California | 5 |
| Sonora | 72 |
| Chihuahua | 67 |
| Coahuila | 38 |
| Nuevo León | 51 |
| Tamaulipas | 43 |

If we focus on the two extremes of the northern border states, Baja California and Sonora, it is possible to see that there are nearly fifteen times as many *municipios* in Sonora as in Baja California (see Table 4.2).⁵² Because Baja California has only five *municipios* and Sonora has seventy-two, the resources for supporting decentralization in Baja California are not spread as thinly as they are in Sonora. Therefore, the governments within Baja California have greater capacity to appoint⁵³ teams of skilled personnel with local knowledge for each *municipios* in addition to granting each *municipio* a larger budget and more time with experts from the state. On the other hand, it is more difficult for many of Sonora's smaller *municipios* to find skilled local personnel to work on decentralizing environmental policy and Sonora's *municipio* governments are less likely to receive adequate time and direction from the state's experienced personnel. In these respects, the difference in the number of *municipios* does affect the process of decentralization through impacting the amount of time and resources received by each *municipio* for support of the writing and implementing of decentralization legislation.

⁵² These two states have similar population numbers and gross domestic products, thus the overall government budgets are similar, although the distribution of the monies is different.

⁵³ In Mexico, the current government appoints many of the bureaucratic positions. This influences processes such as decentralization because instead of a carry-over of skilled professionals, each new government appoints a new set of employees who may have to not only learn their job procedures, but may also be working under a new agenda. (This is often true, even if the new government is from the same political party as the last government.)

As Marina de Carmen Gallaz Salása (2000), director for Sonora's Instituto del Medio Ambiente y Desarrollo Sustentable (IMADES) commented, in smaller *municipios* the staff is smaller, thus the personnel have a wider array of responsibilities. Therefore, these people have to focus on some issues and leave others for the future. In many of the *municipios* within Sonora, the environmental legislation and programs have been left for the future. This is not to say that small *municipios* are incapable of writing *reglamentos* or decentralizing environmental policy, it just takes a concerted effort on the part of the municipal government, and a desire to work as efficiently as possible so that there are resources (material and human) to put toward decentralization of environmental and water policies. For the most part the *municipios* of Sonora have not been able to achieve this, one reason for lack of environmental *reglamentos* and thus lack of decentralization of environmental policy in Sonora's *municipios*.

Applying this to all of Mexico's northern border states, it is possible to see that the other states fall between Baja California and Sonora, although the majority are closer to Sonora than to Baja California. Thus, following the argument, it would suggest that Sonora, Chihuahua and Nuevo León would be the least likely to decentralize effectively, Baja California would be the most likely to decentralize, and Coahuila and Tamaulipas fall somewhere in the middle. The border states that have a greater number of *municipios* with *reglamentos* do not correspond with this ordering. Although Baja California does have the least *municipios* and the greatest percentage of *municipios* with *reglamentos* and Sonora is on the lower end of both, the other states do not fit this formula. Thus, although generally speaking the number of *municipios* likely does play a role in indicating capacity for decentralization, there are other more influential characteristics.

Domestic Economic Elements

According to some scholars, the greater the amount of economic resources a state is able to designate for the development of decentralization, the greater the chances of decentralization (López Murphy et al. 1995). This argument suggests that when a sub-national government has more fiscal resources, thus more institutional capacity they are more likely to introduce the concepts of environmental and water decentralization. Conversely, when a sub-national government has limited resources, the resources are put towards other priorities and thus do not stretch to include environmental decentralization, and although more likely to be put toward the necessity of water, water decentralization is also not high on the list.

Looking at Mexico's northern border states, Table 4.3 shows that the state of Nuevo León has the highest GDP per capita, Baja California, Chihuahua, and Coahuila have mid-level GDP per capita and Sonora and Tamaulipas have relatively lower levels of GDP per capita.

Table 4.3: Domestic Economic Elements

| State | 1999 GDP Per capita (millions of pesos) ^a |
|-----------------|---|
| Baja California | 17,881.6 |
| Sonora | 17,425.4 |
| Chihuahua | 19,591.8 |
| Coahuila | 19,191.8 |
| Nuevo León | 24,590.4 |
| Tamaulipas | 15,186.8 |

^a Source: World Bank 2001, INEGI 2000b.

These data appear to correspond to the border states' number of *municipios* with *reglamentos*, an indicator of decentralization. For example Nuevo León, which has the highest reported GDP per capita also has the second highest level number of *municipios* with *reglamentos* (behind Baja California) and Chihuahua, which has the second highest

GDP per capita is third in line with the percentage of *municipios* with *reglamentos*.

Likewise, Sonora and Tamaulipas, which have the lowest levels of GDP per capita, also reflect low numbers of *reglamentos*.

In addition to the states' GDPs, it is also important to look at federal sources of money for the states.

Table 4.4: Federal Expenditures for Municipal Strengthening 1998

| State | Total (In Millions of Pesos) | Per Capita |
|------------------------|---------------------------------|------------|
| Baja California | 2,879.3 | 3051.70 |
| Sonora | 2,922.1 | 1320.20 |
| Chihuahua | 3,344.4 | 1097.29 |
| Coahuila | 2,993.6 | 1303.94 |
| Nuevo León | 3,767.1 | 984.54 |
| Tamaulipas | 3,852.3 | 1402.31 |

Source: SEMARNAP 2000a (9, 58).

The federal government has a program to give states money for strengthening *municipios*.

Table 4.4 shows that Baja California has received substantially more money per capita for *municipio* strengthening, than have the other northern border states. Again this corresponds with the appearance of greater progress in the process of decentralization in Baja California. Likewise, Sonora, Coahuila and Tamaulipas have received less money from the federal government, which corresponds to the smaller percentage of *municipios* with *reglamentos* and thus a less developed enabling environment (Table 4.1). These data, combined with the GDP per capita reflect a more complete picture of the fiscal resources available within each state for environmental policies including decentralization. This may help explain why Nuevo León and Chihuahua, which have high GDPs per capita yet the lowest federal expenditures per capita, have not created as many *reglamentos* at the *municipio* level and thus appear to have not progressed as far in

the process of decentralization as has Baja California which, although it has only a mid-level GDP among the border states, has the highest federal expenditure per capita.

Political Parties

Another element I suggest to be important for explaining variation in decentralization among Mexico's northern border states is the political party holding the governor's office. This is important for decentralization because research has shown that it is generally opposition governments that recognize the need to take advantage of the possibilities opened up by political projects to counteract centralization (Rondinelli et al. 1984; Rodríguez and Ward 1994). This is particularly true when the opposition government is the PAN; whose party ideology argues that private sector is handicapped due to the concentration of decision-making power in the capital city (Rodríguez 1997). As an added element to this, although Mexico's municipal reform was designed to fundamentally change the character of intergovernmental relations within all of Mexico's states and *municipios*, the federal government promoted it only in select states and *municipios*—those where opposition parties had seen success. This paradoxical action taken by the federal government was due to pressure from opposition governments that recognized the possible advantages to decentralization, and the PRI's belief that supporting decentralization within states with strong opposition parties would help to improve the PRI image within these states (Rodríguez 1997). This PRI belief was based on the notion that supporting decentralization and passing-off of limited responsibilities would make state and *municipio* governments feel as if they had more control, thus hopefully promoting an improved image for the PRI without giving up much power

(Rodríguez and Ward 1994). Consequently, the development of decentralization legislation was encouraged by the PRI in states as opposition parties gained strength.

Table 4.5 shows the governors' political party since 1990 for each of the states.

Table 4.5: Mexico's Northern Border States' Political Party in Control since 1990

| State | Political Party in Control of State's Executive and Legislative Branches (Partido Revolucionario Institucional (PRI) or Partido Acción Nacional (PAN)) |
|------------------------|--|
| Baja California | PAN |
| Sonora | PRI |
| Chihuahua | PAN, PRI |
| Coahuila | PRI |
| Nuevo León | PRI, PAN |
| Tamaulipas | PRI |

This argument adds to “why” Baja California has moved forward with decentralization legislation since the early 1990s when the opposition PAN party won the governor’s seat and had strength in the legislature. Likewise, it can also help to explain the mid-level decentralization found in Nuevo León and Chihuahua. In Chihuahua, the PAN opposition party held the governor’s office for one term (six years) during the 1990s, before returning to the PRI. And in Nuevo León the PAN has taken control, although PAN has not held control of the governor’s office for as many years as in Baja California. These changes between the PAN and PRI within both Chihuahua and Nuevo León suggest these states have not had the same amount of time with an opposition government in office to proceed as far in the process of decentralization as has Baja California. This also can add to the explanation of why in Sonora, Coahuila and Tamaulipas where it was not as vital for the PRI to improve its image and where the governments’ were less likely to promote decentralization as a way of demonstrating a separation between themselves and the PRI run federal government (Rodríguez and Ward 1994; Moreno 2000), there was not the same movement toward decentralization.

A second argument concerning political parties suggests greater competition in the political and electoral arenas encourages decentralization by forcing *municipio* governments to take the initiative and assume administrative responsibilities in order to promote their agendas. When the same political party no longer runs the federal, state and *municipio* governments, i.e., when there is competition, standard operating procedures no longer apply and there are likely to be changes in administration and legislation. This highlights another difference among the states. Pineda-Pablos (2000) suggests that in such states as Baja California and Nuevo León, where government positions are becoming more competitive, authorities are more likely to endorse public participation and feel obliged to grant administrative duties to local level representatives. For example, Tijuana is currently rewriting its environmental *reglamento*. The *municipio* is working to make the procedure more transparent, even putting together a committee with community members⁵⁴ to help incorporate public concerns and ideas. This is important for the *municipio* because as there is more competition within the government, there are more ideas expressed, and a need to include more of the diversity of the public. This is also likely to lead to more decentralization as the public and local officials work to achieve their local agendas.

These same types of events are not occurring to the same degree in states such as Sonora, Coahuila, and Tamaulipas. José Luis Moreno (2000) emphasized this idea, suggesting that the difference between the PAN and PRI control in states is an important factor in the difference in decentralization among states. Moreno noted that the change in government, particularly the success of PAN governors in Baja California has opened the

⁵⁴ The committee includes community members with a background in environment, for example academics and personnel from non-governmental organizations.

door for new ways of thinking and more inter-governmental environmental and water legislation supporting the process of decentralization. By removing the traditional decision-makers, Baja California has been able to move past the old politics and develop new policies. Sonora, Coahuila, and Tamaulipas have not been able to achieve many of these advances because the same group of people within the PRI continuously controls much of the power and the politics of the state, thus blocking movement toward decentralization in all realms, including environmental and water policies.

Border Zone: International Influences and Cross-border Cooperation

For northern Mexico, location within the border zone is important mainly because of the North American Free Trade Agreement (NAFTA) and NAFTA's environmental side agreements. NAFTA has influenced and theoretically advanced the economic systems and environmental policies within the states and municipalities located within 100km of the border, the border region. Three new organizations were created to deal with border issues in the process of establishing NAFTA: the Border XXI Program, NADBank, and BECC. These institutions and programs promised to provide northern border municipalities with additional infrastructure and administrative and political experience for a more open and transparent processes of decision-making, paying particular attention to municipal provision of basic services, and emphasizing sustainable development and the protection of environmental values. Therefore, in addition to improving the environment, a major goal was to encourage decentralization, helping *municipios* take control of their local issues, write clear legislation and improve the efficiency of their administration. The Border XXI and BECC and NADBank attempt to achieve these goals through the distribution of money, expertise and other resources to

the border *municipios*. Additionally, these organizations call for increased public participation, a factor that can be the impetus behind municipal environmental and water legislation when citizens become involved and concerned with their local surroundings.

In addition to the funds from the NAFTA organizations, and in accordance with the framework of the Border XXI program, the World Bank has also created a border environment program, the Programa Ambiental Frontera Norte de Mexico (PAFN). PAFN has worked to strengthen the capacity for environmental policy functions and decentralization of the border states and a select 10 border *municipios*. Again, the chosen *municipios* must be located within the border zone. Table 4.6 compares the percentage of *municipios* and population in the border zone among Mexico's northern border states.

Table 4.6: Mexico's Northern Border States' *Municipios* and Population within Border Zone

| State | % <i>Municipios</i> Located within Border Zone | % Population Living in Border Zone |
|------------------------|--|------------------------------------|
| Baja California | 100% | 83% |
| Sonora | 26% | 04% |
| Chihuahua | 10% | 43% |
| Coahuila | 18% | 13% |
| Nuevo León | 02% | 01% |
| Tamaulipas | 21% | 50% |

Source: USEPA 2001.

For Baja California, all of the *municipios* are at least partially located within the border zone⁵⁵ and eighty-three percent of the population lives within the border zone. These numbers are much lower for all of the other states, in particular for Nuevo León where a mere two percent of the *municipios* and one percent of the population are located within the border zone. The remaining border states fall between these two.

⁵⁵ Additionally, the vast majority of its major cities are located within the border zone.

By looking at the *municipios* supported by the BECC and PAFN programs we can see how these programs support a greater proportion of Baja California than other states (see Tables 4.7 and 4.8).

Table 4.7: BECC Border Projects and Support in Mexico's Northern Border States

| State | <i>Municipios</i> with BECC projects (1994-2000) | % of State's <i>Municipios</i> with BECC Projects | % of State's Border <i>Municipios</i> with BECC Projects |
|------------------------|---|---|--|
| Baja California | Ensenada, Mexicali, Tijuana, Tecate | 80% | 80% |
| Sonora | San Luis Rio Colorado, Naco, Agua Prieta, Nogales, Sasabe, Puerto Peñasco | 8% | 32% |
| Chihuahua | Ciudad Juarez | 2% | 14% |
| Coahuila | Ciudad Acuña, Piedras Negras | 6% | 29% |
| Nuevo León | | 0% | 0% |
| Tamaulipas | Matamoros, Ciudad Reynosa | 5% | 22% |

Sources: USEPA 2001; www.cocef.org (accessed July 12, 2002).

Table 4.8: PAFN Border Programs and Support in Mexico's Northern Border States

| State | <i>Municipios</i> with PAFN projects (1994-1999) | % of State's <i>Municipios</i> Funded with PAFN | % of State's Border <i>Municipios</i> with PAFN Funding |
|------------------------|--|---|---|
| Baja California | Mexicali, Tijuana | 40% | 40% |
| Sonora | San Luis Rio Colorado, Nogales | 3% | 11% |
| Chihuahua | Ciudad Juarez | 2% | 14% |
| Coahuila | Ciudad Acuña, Piedras Negras | 6% | 29% |
| Nuevo León | | 0% | 0% |
| Tamaulipas | Nuevo Laredo, Ciudad Reynosa, Matamoros | 7% | 33% |

Source: USEPA 2001.

Tables 4.7 and 4.8 show the international organizations are following their geographical mandates; the support from these organizations is going to border *municipios*. Because 100 percent of Baja California's *municipios* fall, at least partially, within the border zone, they are all eligible for support, allowing for a higher total percentage of *municipios* to receive support. This is not the case for the other states and particularly not for Nuevo León.⁵⁶ Indeed, four of Baja California's five *municipios*, a full eighty percent have received resources from these organizations. The other states come nowhere near these numbers for support. Thus these international programs and their resources work as incentives for all of Baja California's *municipios* to pursue the process of decentralization but are incentives for a much smaller percentage of *municipios* in the other states. This may help explain why there are more *municipios* with *reglamentos* in Baja California than in the rest of the northern border states.

Furthermore, because such a large percentage of Baja California's population lives within the border zone, international organizations recognize that can they affect more people by supporting programs in Baja California's *municipios*. Additionally, well-known decentralization scholars such as Vieira (1967) suggest that the larger the population of *municipios*, the more likely the *municipio* will decentralize—a possible reason why international organizations would chose to support more populous *municipio*. Because so many of the other states' border *municipios* have small populations, they are less likely to draw attention to receive support and are less likely to put a lot of effort into gaining support for decentralization. The cities chosen for PAFN funding had to have a

⁵⁶ This relates back to the first argument, with smaller numbers of *municipios* decentralization is easier. Because Baja California has only five *municipios*, it is possible for all of them to fall within the border zone. For the other states with larger numbers of *municipios*, it would be next to impossible to have all *municipios* touching the border zone.

substantially large population so smaller *municipios* were not considered for the resources, therefore leaving many of the *municipios* in states other than Baja California without the additional incentives to decentralize. And these small *municipios* are more likely to put their efforts (and any money they receive from international sources) into issues such as improving public services, possibly even water decentralization, rather than decentralization of environmental policies.

Focusing on two states, Baja California and Sonora, suggests the international programs have influenced decentralization. The *municipios* supported by the international programs in Baja California have all either written or reworked environmental legislation since 1994 when the international programs began. In Sonora, Nogales and San Luis Rio Colorado have written environmental legislation since 1994, however San Luis Rio Colorado's legislature has not yet passed their environmental legislation. In addition, Agua Prieta also has environmental legislation, but it was enacted before 1994. Thus, within these two states, three of the six *municipios* supported by BECC and both with funding from PAFN have decentralized, or soon will—although Agua Prieta is an exception since it did not pass its legislation within the time period of these international programs. This shows that even if support from the international organizations has not directly led to the writing of legislation, it appears to have created an atmosphere of support, thus adding to the human resource capacity for the writing of environmental legislation.

The supportive atmosphere present is due in part to another goal of the international organizations, increased public participation. The aforementioned BECC and PAFN programs push for increased public participation within the *municipios* where

they work. However, additionally, bi- or inter-national non-governmental organizations also push for increased public participation. Public participation is important for decentralization for a number of reasons. First and foremost, it brings additional players into the arena. Although they are generally not decision-makers or administrators, they can and do influence the actions of the decision-makers and administrators. Additionally, public participation is often provocation for actions such as writing *municipio* environmental legislation. Although it is hard to define exactly how important public participation is for decentralization, most scholars will agree that it is directly tied to decentralization and plays a substantial role. The bi-national and international organizations advocate for increased public participation in the *municipios* within which they work—and particularly within the *municipios* along the border where the effects are felt in both the U.S. and Mexico. Again, because of the larger number of *municipios* and people within the border region in Baja California, there appears to be more numerous and more vocal movements for increased public participation within this state. Furthermore, once greater public participation begins, it is generally self-perpetuating. Consequently, the border zone impacts decentralization not only through resources and support but also through the atmosphere created. Again, since Baja California's *municipios* and population tend to be located within the border zone, more of the state benefits from these traits. And, once again, Nuevo León appears to be an exception to this argument. A very small percentage of the state's area and thus a small percentage of the state's population live within the border zone, and thus Nuevo León does not gain many benefits from these traits. Therefore, although this argument appears to shed light on the process of decentralization in Baja California, Sonora, Chihuahua, Coahuila, and

Tamaulipas, it does not add to the explanation of why Nuevo León has created more of an enabling environment for decentralization than most of its counterparts.

Discussion

Many issues impact a state's ability and/or desire to write environmental legislation, an indicator of the decentralization process for environmental policy. For Mexico's northern border states, I suggest that four phenomena are of particular interest. These phenomena include the number of *municipios* within a state, domestic economic incentives, the political party in control of the governor's office and the percentage of *municipios* and population within the border zone. Fewer *municipios*, greater fiscal resources from GDP and federal sources, opposition party in the governor's office, and larger percentages of *municipios* and population within the border zone appear to aid the process of decentralization of environmental policy.

Each of these four phenomena exists in Baja California, thus stimulating that state's movement in the process of decentralization of environmental policy. In contrast, Sonora's large number of *municipios*, small percentage of *municipios* and population within the border zone and PRI dominated government slow progress for environmental decentralization with Sonora. The states of Coahuila and Tamaulipas appear to be on the lower end with moderate level of decentralization and a mix of all of the aforementioned elements. Nuevo León and Chihuahua, which have mid-level decentralization, have had PAN leadership, have higher GDPs, but also have a large number of *municipalities* and Nuevo León has a smaller percentage of land and population within the border zone. Nuevo León and Chihuahua, as the middle cases, appear to suggest that the number of

municipios, international funding, and presence in the border zone are not as important as the political party in the governor's office and the GDP—it is necessary to have a certain amount of money to cover basic necessities before people and governments will choose to deal with environmental concerns. Finally, it is surprising that the border zone did not appear to play a larger role in influencing progress in the process of decentralization. However, this suggests that when a state has a larger GDP (more monetary resources), resources from the border projects are not as important as they are to states with a smaller GDP.

These characteristics shed some light on Mexico's northern border region—and how factors that affect decentralization vary among the states and ultimately influence the process of decentralization. This discussion has also suggested similarities and differences among the states, revealing the diversity between Sonora and Baja California. These differences, in addition to their similarities (location on the western side of the border and elements of their economic and social structures) make it possible to apply the MSS approach. Although other border states would offer additional aspects to a comparison, the benefits of working with two neighboring states that show variation led to the choice of these states as the case studies for this research. The next two chapters examine Sonora and Baja California, looking in detail at the factors that affect decentralization of environmental policy.

Chapter 5: Sonora

The first case this study explores is the state of Sonora. This chapter proceeds first with a general description of Sonora's geographical, economic, and political conditions and structures. Next is a discussion of the state's legal framework for and agencies charged with administering Sonora's environmental and water policies. This section, and those that follow, focus on five of Sonora's major *municipios* in an attempt to build a picture of environmental and water issues without getting bogged down in Sonora's large numbers of rural *municipios* that have not made progress in the process of decentralization. Following the legal framework and agencies discussion is an examination of other factors that affect decentralization: political parties, international influence, and public participation. Finally, the chapter concludes with a discussion of the information presented and its relation to the overarching concepts of environmental decentralization and water decentralization.

The State of Sonora: Overview

Understanding the basic geographic, demographic, and political aspects of Sonora builds the groundwork for greater understanding of Sonora's political policies. The state of Sonora is located in the northwestern part of the Mexican Republic. It is bounded on the north by the U.S. state of Arizona, at the northwestern tip by Baja California, on the west by the Gulf of California, on the east by Chihuahua, and on the south by Sinaloa.

Sonora covers 185,431 square km, 9.37 percent of the national territory, making it Mexico's second largest state.

Sonora's climate is mainly dry and desert-like with little to no rainfall.⁵⁷ However the 900km of beaches are more temperate, and there is a strip of hills and valleys that extends from the central coast north that is subtropical. Additionally there is snow and cold in the high mountains in the northeastern part of the state. These climatic conditions, the uneven distribution of precipitation, surface water, and temperature, together with Sonora's extraordinary variation in topography, geological substrates and soils, produce great diversity in flora and fauna. According to Búrquez and Martínez-Yrizar (1997), Sonora, which encompasses less than ten percent of the country, is home to about twenty percent of the Mexican flora and an even greater percentage of the fauna.

In an attempt to preserve some of the biological and habitat richness of the state of Sonora, a number of biosphere reserves have been created. Currently there are ten reserves⁵⁸ in Sonora—although only four are operating formally as reserves, with a permanent staff and headquarters—putting about eight percent of the land in Sonora under some form of protection.

Population and Economy

According to Mexico's 2000 national census, Sonora's population totals more than 2.2 million people. This population is distributed into seventy-two *municipios*, the

⁵⁷ Sonora receives around 436mm of rainfall annually, however this is unequally distributed around the state, with the northeast receiving less than 50mm annually of precipitation and the southeast receiving more than 1,000mm annually (Búrquez and Martínez-Yrizar 2000: 278).

⁵⁸ The protected areas in Sonora include seven reserves: Sierra los Ajos, Buenos Aires y la Púrica; Cajón del Diablo; Bavispe; Isla Tiburón; Islas del Golfo de California; El Pinacate y Bran Desierto de

main ones being Hermosillo, Cajame, Nogales, San Luis Rio Colorado, and Navajoa. Eighty-three percent of Sonora's population lives within urban regions, with the remaining seventeen percent residing in rural areas.

The industries of Sonora include agriculture, livestock production, forestry, fishing, mining and tourism. There is also an active *maquila* industry, particularly along the northern border with the U.S. Traditionally agriculture has been Sonora's most important industry, in 1960 it made up thirty-five percent of Sonora's GDP, however tourism and the *maquila* industry have grown in importance reducing agriculture's share of the GDP to 6.5 percent by 1996 (Búrquez and Martínez-Yrizar 2000: 303).

State Government

Following the structure of the federal government, Sonora's state government consists of the executive, legislative and judicial branches. Executive power is exercised by a Governor who is elected every six years, a State Attorney General who has limited responsibilities, and five executive Secretariats: Planning and Budget; Finance; Education and Culture; Public Health; Urban Infrastructure and Ecology, each of which is charged with implementing state laws. Legislative responsibilities are carried out by the state Congress, whose representatives are elected every three years. Finally, the judicial branch consists of a Superior Tribunal of Justice (state supreme court), Civil Courts, and Criminal Courts.

Altar; Alto Golfo de California y Delta del Río Colorado and four protected zones: Arroyo los Nogales; Ciudad de Hermosillo; Presa Abelardo L. Rodríguez/El Molinito; Sierra de Alamos y Arroyo Cuchujaqui

With this basic understanding of Sonora and the factors that characterize the state, it is now possible to look specifically at environmental and water policy issues within the state.

The Legal Framework for Environmental Protection and Water in Sonora: The Formal System

Environmental protection in Mexico is dependent upon all levels of government: federal, state and *municipio*. The legal framework for environmental and water policies within Sonora is no different. Environmental and water legislation and implementation agencies are found at each level of the system, with state and *municipio* powers remaining partially subsidiary to federal authority. Within Sonora, the distribution and acceptance of formal authority is reflective of Mexico's *nested fail-safe system* where if the *municipio* and state are incapable, then jurisdiction passes to the federal level. Thus, traditionally, federal institutions have dominated Sonora's environmental and water sectors. However, recent trends are cultivating change, granting more formal responsibilities to the state and local governments.

Environmental Legislation in Sonora

State Environmental Legislation

Sonora's central environmental legislation is the Ley de Equilibrio Ecológico y la Protección al Ambiente para el Estado de Sonora (Ley 217). Ley 217 was adopted in 1990—one of the earliest state environmental laws to be adopted within Mexico—and in many respects mirrors the 1988 national law. This state environmental law is entrusted to the Secretariat of Urban Infrastructure and Ecology (SIUE), which nominally has

jurisdiction in all those areas not expressly delegated or defined as the prerogative of the federal government.

Ley 217 allows the Sonoran *municipios* to formulate and conduct municipal ecology policy; regulate low-risk activities that affect the environment; establish mechanisms for regulating pollution; prevent and control ecological emergencies and environmental contingencies with the municipality; evaluate environmental impacts and apply necessary sanctions to violators of the environmental code. Additionally, according to Ley 217, each *municipio* has the power to require Environmental Impact Statements in specified developments, to adopt their own environmental ordinances in conformity with state and federal ecology laws, and to constitute a Municipal Ecology Commission to deal with environmental issues within the *municipio*. Finally Sonora's environmental law also officially endorses public participation. It does this by stating that citizens have the right to denounce, before *municipio* or state authorities, what they believe to be violations of the environmental law. That said, and as Sandra Martinez of La Red Fronteriza de Salud y Ambiente, A.C. notes, neither the *municipios* nor the public know the law well, so it is not very functional for either group (2000). Furthermore, as of yet there is no *reglamento*, or implementing law, to accompany Ley 217, an important lacunae in this piece of Sonora's environmental legislation and ultimately in Sonora's process of environmental decentralization. Despite this weakness, Sonora's formal mandates move beyond the earlier period of extreme centralization of environmental policy, granting a greater role for both the state and its *municipios* in formulating and implementing environmental policy.

In addition to Ley 217, a number of other laws tangentially affect environmental policy. These include:

- *Derecho que Crea el Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora* (Decree Creating the Sonoran Institute for the Environment and Sustainable Development), which created the Institute as a decentralized, public entity designed to carry out and promote scientific and technological studies that contribute to the knowledge of the environment and promotes ecological values within Sonora.
- *Ley de Desarrollo Urbano para el Estado de Sonora* (Sonoran Urban Development Law), which is charged with setting limits to balance developmental and ecological concerns.
- *Reglamento Interior del COPLADES* (Interior implementing law for El Comité de Planeación para el Desarrollo de Estado de Sonora), which sets out general regulations on development within Sonora.

Finally, there are federal-state administrative regulations dealing with environmental in Sonora, agreements signed with the federal agency SEMARNAT. From 1995 through 1999, 163 decentralization agreements were signed between SEMARNAT and the six Mexican border states. Of these, forty-two (twenty-six percent) were between SEMARNAT and Sonora (USEPA 2001, 16), showing substantial work to further formal decentralization of environmental issues.

Municipal Environmental Legislation

Both federal and Sonoran environmental law provide for the development of municipal ecology regulations. Five⁵⁹ of Sonora's seventy-two municipalities (seven percent) have an environmental protection or an ecology ordinance (*reglamento*) (although others presumably have their *reglamentos* in process). Of the five municipalities this research focuses on, four of the five have environmental *reglamentos* in place (see Table 5.1).

Table 5.1: *Municipio* Ecology Ordinances within the State of Sonora

| <i>Municipio</i> | Date <i>Reglamento</i> Adopted |
|------------------|--------------------------------|
| Hermosillo | |
| Cajeme | 1998 |
| Nogales | 1994, 1998 |
| Agua Prieta | 1990, 1992 |
| Navajoa | 1997 |

As Table 5.1 reveals, Sonora's *municipios* developed and adopted their environmental legislation over a period of time. Furthermore, the differences among the *municipios*' *reglamentos* extend beyond this, and into the construction of the legislation. Each *reglamento* deals with environmental issues in slightly different ways, as demonstrated by these brief summaries of each *reglamento*.

1. Hermosillo (the capital city)

Hermosillo's environmental legislation has been "in process" since 1997, and remained "in process" at the end of 2002. Gallaz Salása (2000) of IMADES mentioned that Hermosillo was making progress in the spring of 2000, but since local elections in July 2000 and the change of government later that fall, other issues were

⁵⁹ The *municipios* with environmental *reglamentos*: Cajeme, Nogales, Navajoa, Agua Prieta, and Cananea. Additionally San Luis Rio Colorado is soon to adopt one and Hermosillo is said to be working on theirs.

deemed more pressing. Gallaz Salása remained hopeful that after the new local government settled in, the *reglamento* would again be addressed. However, as Martínez (2001) suggests and as confirmed by Hermosillo's lack of a *reglamento* yet eighteen months after local elections, progress toward this goal appears to be inhibited.

2. Cajeme (Ciudad Obregon)

The *municipio* of Cajeme adopted the “Reglamento en material de preservación y reforestación del equilibrio ecológico y el mejoramiento del ambiente para el municipio” on August 24, 1998. This *reglamento* gives responsibility for application of the *reglamento* and inspections to El Secretario de Desarrollo Urbano, Servicios Públicos y Ecología (Secretariat of Urban Development, Public Services and Ecology), La Subdirección de Ecología y Protección al Ambiente del Municipio (Office of Ecology and Protection of the Municipal Environment), and La Comisión de Protección Ambiental (Commission of Environmental Protection)—a local level environmental agency. The Secretario de Desarrollo Urbano, Servicios Públicos y Ecología grants licenses and checks the diagnostics of projects, making sure the results do not create unsatisfactory evaluations of environmental impacts. The Subdirección certifies the studies and evaluations of environmental impacts, imposes the sanctions for infractions, establishes programs for cultural development surrounding the environment, and publicizes the Official Norms (Normas Oficiales Mexicanas) that will be applied within the *municipio*. Finally, the Comisión de Protección Ambiental's functions are determined by the city council (*ayuntamiento*).

The *reglamento* also calls for participation and help from the public to solve, control, and prevent environmental problems, and it explains what is involved with environmental impact evaluations. Finally the *reglamento* discusses protected areas, prevention and control of air, water, soil, and noise pollution and the sanctions ascribed to various infractions.

3. Nogales

The environmental *reglamento* for Nogales was adopted in 1994. This *reglamento* sets up La Comisión Municipal de Ecología del Municipio de Nogales (Nogales Municipal Ecology Commission). Members of the commission include representatives from numerous local government agencies and academic institutions. The commission's functions include working to preserve, protect and restore the environment by investigating actions taken within the *municipio*; propose ecological priorities and programs; and promote public participation for environmental issues.

4. Agua Prieta

Agua Prieta's "Reglamento de limpia y prevención a la contaminación, para el Municipio de Agua Prieta, Sonora" was adopted in 1990. In 1992 the municipality modified the ecology *reglamento*, making it more closely reflect the state's Ley 217. These *reglamentos* set up a local level Comisión de Ecología charged with promoting programs to protect the environment, encouraging public participation and asserting implementation of the *reglamento*. The Comisión is also directed to set out expectations for industries, businesses and citizens and sanctions to be applied if the regulations are not followed.

5. Navajoa

On July 31, 1997 the “Reglamento de Ecología, Protección al medio ambiente e imagen urbana para el municipio de Navajoa, Sonora” was adopted. This *reglamento* establishes the standards for conservation, protection, restoration, regeneration and preservation of the environment in Navajoa. Under this *reglamento* responsibility for environmental protection falls to the city council and two local level government agencies: the Dirección General de Infraestructura Urbana y Ecología (Department of Urban Infrastructure and Ecology) and the Dirección de Planeación Urbana y Ecología. Issues including water, air, soil and noise pollution are addressed in great detail, even listing chemicals that are regulated and describing what is allowed within natural and cultural protected areas. Finally the *reglamento* addresses what is prohibited for citizens and industries, the process of inspections, and the sanctions that will be applied if infractions are detected.

Clearly the above *reglamentos* reveal differences among the *municipios*. These differences include structures responsible for implementing the legislation: Cajeme charges three entities with responsibilities, Navajoa grants responsibilities to two local entities while Nogales and Agua Prieta’s legislation create local ecological commissions to implement the regulations. Additionally the *reglamentos* differ in detail surrounding environmental protection and pollution prevention: Cajeme and Navajoa both describe standards and administration (granting of licenses, evaluation of environmental impacts, and infractions for sanctions) in detail, assigning responsibilities to the *municipios* while Nogales and Agua Prieta are more general in their descriptions, not noting who is charged with certain responsibilities. That said, all of the *reglamentos* do discuss public

participation and education programs. Hermosillo, whose *reglamento* is not yet finished, will also provide for public participation, according to municipal planners (Duarte 2000).

Overall, the *reglamentos* reveal that four of the five *municipios* created an enabling environment for themselves by legally specifying their rights and responsibilities concerning environmental policy. Yet at the same time these ordinances are not very well known or readily accessible. Ortuño, who works with environmental issues and *maquiladoras*, noted, when attempting to find a reference listing environmental laws and regulations, there was none to be found (2000). Ortuño stated that the legislation at the *municipio* level, and even to some degree at the state level, is “confusing, not very detailed, and generally copies the federal law...and that there has not been much effort put into environmental regulations.”

That said, despite this lack of movement on the part of *municipios*, there are reasons to believe that some *municipios* are beginning to recognize the benefits from and the importance of enacting environmental *reglamentos*. For example, the importance of having environmental legislation at the *municipio* level was made clear in early 2001 in San Luis Rio Colorado (SLRC)—a *municipio* that does not have a *municipio reglamento*. Agricultural burning near the outskirts of SLRC created logistical problems for the local government, the lack of a *reglamento* allowing application of sanctions for those who disregard regulations with respect to the environment made it difficult if not impossible to punish those who had adversely affected the entire community (Angulo C. 2001). Situations such as this have quickened the desire to finalize the *reglamento* upon which the local government is now working and has emphasized the importance of *reglamentos* to other *municipios*.

State Water Legislation

The two major pieces of water legislation in Sonora are the Ley de Agua Potable y Alcantarillado para el Estado de Sonora (Potable Water and Drainage Law for the State of Sonora) and the Ley de Aguas del Estado de Sonora (Water Law for the State of Sonora). On May 7, 1992 Sonora was the first state to enact a new state water law following the federal government's newly enacted national water law. Sonora's law, Ley de Agua Potable y Alcantarillado para el Estado de Sonora was portrayed as a model law by the CNA. Within this law Sonora transferred water and sewerage service responsibilities to *municipios*, granted management units the power to suspend or cut service due to non-payment, and designated citizen representation in government user committees. Furthermore, Sonora's new water law stated that decisions for water tariffs were no longer the responsibility of the state legislature but instead were given to water agencies' directive boards, and put into place legal provisions that allow water agencies to sign service contracts with private enterprises.

Sonora's second piece of water legislation, Ley de Aguas del Estado de Sonora, emphasizes the federal control over water resources, noting that water resources fall under Sonora's regulations only if they are not defined to be under federal control. That said, the law goes on to regulate and coordinate the use of waters within Sonora and sets priorities for use. Overall, Sonora has taken steps to formally decentralize some aspects of water regulation to both the state and *municipios*. However, Sonora's state-level water legislation also consistently emphasizes the rights and responsibilities of the federal government.

Municipal Water Legislation

Sonora's *municipios* have not written their own legislation specifically addressing water policies and management—although water issues are addressed as far as they are connected to environmental legislation. Federal and, in particular, state water legislation assigns responsibilities to *municipios*, where the state governor deems it appropriate. This direct connection to the state government grants the *municipios* administrative rights and responsibilities without necessitating local level legislation, but at the same time creates a legal tie between the *municipios* and state governments.

Discussion

Environmental Legislation

Formal decentralization is proceeding in Sonora at the state and municipal level. This is evident in the adoption of legislation and *reglamentos* in major *municipios*, except Hermosillo. It is further evident in the development of the SEMARNAT-Sonora *convenios*. However, formal decentralization has not gone very far. The state itself has yet to pass a much-needed *reglamento* to Ley 217 and many smaller *municipios*, in addition to Hermosillo, still lack enabling legislation. Moreover, even with formal legislation, the state and leading *municipios* lack sufficient capacity to implement current authority.

The decade of the 1990s saw a surge in environmental legislation at the state and local levels, a logical development following creation of the LGEEPA in 1988, which purported to advance decentralization nationwide. As a part of this movement for decentralization, Sonora's administration signed forty-two decentralization agreements

with SEMARNAT (twenty-six percent of the total agreements) (USEPA 2001, 16). At minimum, this shows a desire to take advantage of federal initiatives and establish an enabling environment that strengthens the state's capacity for environmental decentralization.

It is also important to note that Sonora was one of the first states to formally take advantage of the possibilities for greater environmental decentralization. Unfortunately, the *municipios* within Sonora have not followed the state's lead in writing and enacting formal legislation that clearly define local level rights and responsibilities towards the environment. Overall, ninety-three percent of Sonora's *municipios* have yet to write their environmental *reglamento* and are thus missing the first piece of establishing capacity for decentralization; they do not have an enabling environment. Furthermore, *municipio* legislation is not written with a focus on local areas, but instead has been generally been copied from the federal legislation, thus limiting capacities and the possibility of advancing decentralization beyond delegation (Ortuño 2000). These concerns reveal a lack of faculty (most frequently limited resources or involved personnel—addressed in the following section) and may indicate *municipios*' desire to avoid responsibility or accountability for dealing with environmental problems.

Despite this lack of movement on the part of *municipios*, there are reasons to believe that some *municipios* are beginning to recognize the benefits from and the importance of enacting environmental *reglamentos*. Of the five *municipios* researched for this work, four of the five *municipios* have *reglamentos* and as such have created an enabling environment for themselves. On paper there is a description of rights and responsibilities for these *municipios*. Although reality does not necessarily parallel what

is on paper, the *reglamentos* at least lay out goals for which the *municipios* can strive, provide administrative instruments for their realization, and strengthen the basis for *municipio* responsiveness to locally based environmental concern.

Water Legislation

Sonora's water legislation does show some signs of decentralization. Water resources not specifically defined under federal control fall under state regulations. Sonora has utilized this opening, clearly stating its rights and responsibilities with water provision and sewerage services. The state also suggests rights and responsibilities for the *municipios*, although the *municipios* have not followed this lead and developed water legislation to designate their own rights and responsibilities. In addition, much of this legal capacity focuses on management concerns rather than actual decision-making, particularly at the local level, and the state legislation frequently refers to the federal authority, highlighting Mexico's *nested fail-safe system*. This is likely due, in part, to the fact that water is considered a basic need and thus the federal government maintains some control and the state and *municipios'* governments gain security with the provision of water and sewerage. In sum, Sonora's state water legislation builds the framework for delegation at the state level and deconcentration at the local level.

Environmental and Water Legislation: Formal Frameworks

Comparing environmental and water legislation within Sonora, it is fair to say that water legislation has not progressed as far in the process of decentralization as has environmental legislation. This can be seen not only in sheer numbers, there are more pieces of environmental legislation—most notably at the *municipio* level—than water legislation, but also in the fact that the water legislation refers back to the federal

government more frequently than does the environmental legislation. Where the state and some of the *municipios* clearly define who is responsible for what parts of environmental administration and protection, in water legislation the state lists the federal government's rights and responsibilities and then makes general statements about state and local responsibilities. Thus, looking solely at the formal-legal aspects of environmental and water policies in Sonora, it appears there is some devolution of environmental policies, but little more than a deconcentration of water policies.

Overall, Sonora as a state has made progress in the legal aspects of decentralization of environmental and water policy. However, Sonora's *municipios*, including its capital city still lag in creating an enabling policy environment, particularly with water policies. What are the reasons for the success, or lack thereof, for *municipios reglamentos*? Are there other areas where the *municipios* exhibit advancement in the process of decentralization of environmental and/or water policies? The next section attempts to answer these questions by exploring human resource and institutional developments.

Sonora's Environmental and Water Policy: Resource Development and Institutional Development

Moving past formal legislation and the enabling environment, this section looks at Sonora's state and *municipio* human resource and institutional capacity for environmental and water decentralization. This section begins by describing the agencies responsible for implementation of decentralization and then looks at the fiscal resources these agencies have at the state and *municipio* levels.

Environmental Agencies and Resources

State Agencies Responsible for Environmental Policies

At the state level, Sonora has a number of institutions that are associated with environmental policies. The Sonoran agency that is most directly associated with environmental policies, and their lead agency for environmental protection, is the Secretaría de Infraestructura Urbana y Ecología (Secretary of Urban Infrastructure and Ecology, SIUE). Article 46 of Ley 217 established SIUE. It has jurisdiction in all areas not expressly delegated or defined as the prerogative of the federal government. SIUE deals with a wide range of environmental activities and is the agency of first resort for most citizens attempting to deal with an environmental problem or raising an environmental concern for public consideration. Additionally, according to Ortuño (2000) who works with environmental issues within industrial parks, SIUE is the agency that most frequently deals with environmental impact statements (EIS). This is because many of the *municipios*⁶⁰, for example Navajoa, Nogales, and Agua Prieta, lack the personnel to work on environmental issues (Perez 1998; Guzman 1998; Gonzales 1998, Martinez 2000). Even Ramon Castrejon (2000) from Sonora's SIUE noted that not much has changed for them since the 1996 environmental decentralization legislation was written. However, Castrejon (2000) also mentioned that they are holding workshops to help *municipios* with decentralization issues such as environmental impact statements.

It is also important to note that according to personnel at the Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora (IMADES) (Sonora's Institute of Environment and Sustainable Development) (Villaseñor 1998; Gallaz Salása

⁶⁰ A few *municipios* handle their own EIS: Cajeme utilizes their ecology agency and Hermosillo hires contractors.

2000) SIUE's capacity has declined since 1997. The 1998 PRI administration put fewer resources into the ecology department of SIUE and has limited staff to just five people. Therefore, despite the fact that SIUE is charged with dealing with many of Sonora's environmental concerns, only a small percentage of SIUE's resources go toward environmental protection per se; the vast majority of resources are put into urban development. Case in point, in 1998, thirty-four percent of SIUE's budget went to public roads, thirteen percent to rural sewage, eleven percent to urban sewage and the remaining forty-two percent was divided among all other uses including environmental protection (*El Imparcial* cited in Mumme 2000).

Another agency that deals with environmental issues in Sonora is IMADES. IMADES was created to carry out scientific and technological studies and investigations that contribute to the knowledge of Sonora's ecosystems and the conservation, preservation, evaluation and improvement of the environment and natural resources within Sonora. IMADES counts thirty-five researchers and around 120 other personnel to accomplish its mandate.

A governmental council, including the governor and the head of SIUE, a Director General named by the governor, and a Council of accredited scientists, half of who must reside in Sonora, manage IMADES. In addition there is a public commission with oversight responsibilities. Although on paper this looks good, in reality there are a number of concerns; for example, the Director General is not only selected by the governor, but can hail from any region of Mexico. This hurts environmental regulations and the process of environmental decentralization because the connection between the institute's senior administrator and the citizens of Sonora is weak. This, in turn, may

limit the Director General's desire to freely delegate responsibility. Additionally, the public commission in reality has little to no power. This, again, limits local influence particularly for those not appointed by the state government, and has created an atmosphere of distrust based in what citizens perceive as lack of transparency and accountability to the public.

IMADES is somewhat of a special case because it was created as a so-called decentralized public institution. This means that although IMADES is connected to the state government, a minimal amount of their budget comes from the state, the rest comes from grants and projects (Villaseñor 1998; Gómez Limón 2002). Because of these hybrid tendencies, IMADES is criticized by NGOs for having ties to the Chamber of Deputies, yet IMADES does not receive benefits, such as secure funding, for having these ties (Arias 1998). Thus, IMADES finds itself in the unfortunate position of lacking strong connections to the state government but also lacking strong connections to citizens.

State Budget for Environmental Agencies

Just as funding is a question with IMADES, all of Sonora's state environmental agencies find themselves facing limited personnel, technology, and resources, mainly due to limited budgets. As governmental budgets are another indicator of decentralization, by looking at Sonora's ecology budget we can gain insight as to Sonoran environmental agencies' capacity to actually develop and implement decentralization policies.

Table 5.2: Sonora's Ecology Budget for 2000

| | Total Budget | Urban Development | Urban Development Budget as % of Total Budget |
|---|--------------------|-------------------|---|
| Sonora | \$9,930,621,000.00 | \$55,600,000.00 | 0.56% |
| Line Items: | | | |
| Urbanization and Equipment | | 2,500,000.00 | |
| Construction and Betterment | | 3,600,000.00 | |
| Policy/Planning of Urban Development | | 2,000,000.00 | |
| Environmental Protection and Preservation | | 2,200,000.00 | |
| Rural Potable Water | | 12,600,000.00 | |
| Rural Sewerage | | 4,400,000.00 | |
| Paving | | 5,800,000.00 | |
| Electricity | | 850,000.00 | |
| Urban Highways | | 1,000,000.00 | |
| Sports Infrastructure | | 350,000.00 | |
| Land Possession Regulations | | 6,000,000.00 | |
| Urban Potable Water | | 7,000,000.00 | |
| Urban Sewerage | | 6,700,000.00 | |
| Historic Sites | | 600,000.00 | |

Source: Estado de Sonora 2000.

Table 5.2 shows that \$55,600,000.00, about one-half of one percent of Sonora's total budget is designated for developmental and environmental concerns. Additionally \$2,200,000.00, four percent of the development and ecology budget and 0.02 percent of Sonora's total budget is specifically designated for environmental protection. This data suggests that funding for environmental concerns within Sonora is limited and ecology is not deemed a priority concern within the Sonoran state government. Instead Sonora appears to focus on basic necessities such as potable water and sewerage.

Despite limited fiscal resources, many of the personnel that are employed by Sonoran environmental agencies are dedicated to the environment. These dedicated employees have, despite hurdles, achieved impressive accomplishments. An example of

this dedication is seen in El Pinacate Biosphere Reserve, on the western side of Sonora's northern border. The reserve is federally protected and thus receives federal funds, although management authority of El Pinacate rests with IMADES. In 1997, the director of El Pinacate paid the salaries of his staff out of his own pocket more than once when federal funds failed to arrive (Dedina 2000, 68; Gallaz Salása, 2000). The director did this because of his commitment to the Reserve. It is an unwritten rule that working in the field takes officials away from the state capital or other politically active areas, and is not a wise strategy for moving up the career ladder (Dedina 2000, 75), thus the director most likely received no political benefit for taking this action. This is just one of many examples of the dedication of the employees on the ground to maintaining Sonora's environment.

This type of action suggests that, despite limited personnel and fiscal resources for wages, the state does have many employees with "appropriate" attitudes, an important element of human resource capacity building for decentralization. Unfortunately it is also the case that many administrators are leaving the state's environmental agencies. As noted by Villaseñor (1998) and Gallaz Salása (2000), both of IMADES, part of the problem with human resource capacity building is that once administrators gain experience with government agencies, it is not uncommon for them to leave for the private sector which pays a good deal better than government.

Municipal Environmental Agencies

One of the challenges for decentralization at the local level in Sonora is the rapid turnover of *municipio* governments. Under the constitutional rule of "no reelection," *municipio* governments turnover completely every three years, contributing to both

political and administrative discontinuity. According to Gallaz Salása (2000), a private contractor who works for IMADES, even when the administration comes from the same party as the previous administration, with elections every three years there is an incentive to focus on the short term. An additional concern that local government faces, as does the state government, is government personnel using *municipio* and state agencies as a place to gain experience. After gaining experience with the local government, personnel move into the private sector and earn a higher salary. The result of this is that the *municipios* lose trained personnel and must re-hire and re-train. This again hurts continuity and ultimately affects decentralization efforts; those with experience and who are capable of making a difference at the local level periodically leave, forcing local governments to rely more on the state and federal government agencies for resources and expertise.

Despite these concerns, by the end of 2000, Sonora had made advances in the process of *municipio* environmental decentralization. These advances are evident not only in the previously discussed development of *reglamentos*, but also in the administrative structure for environmental and ecological issues. Most of Sonora's major *municipios* have an office or department charged with environment and ecology administration.⁶¹ In addition some of the *municipios* show further elements of decentralization due to their creation of a separate ecology office and/or an ecology commission.

⁶¹ All of Sonora's *municipios* are suppose to have such an agency, but as of yet only the larger ones have taken this step.

Table 5.3: Administrative Structure for Leading Sonoran Municipalities

| Municipality | Department Charged with Ecology Administration | Separate Ecology Office | Ecology Commission |
|--------------|--|--------------------------|--------------------|
| Hermosillo | Desarrollo Urbano y Obras Públicas | Yes, <i>subdirección</i> | Yes |
| Cajeme | Desarrollo Urbano, Servicios Públicos, y Ecología | Yes, <i>subdirección</i> | Yes |
| Nogales | Dirección de Planeación del Desarrollo Urbano, Obras Públicas y Ecología | Yes, <i>subdirección</i> | Yes |
| Agua Prieta | Política y Planeación del Desarrollo Urbano y Asentamientos Humanos | No | Yes |
| Navajoa | Dirección de Infraestructura Urbana y Ecología | Pending | No |

Source: Duarte (2000); Gonzales (2000); Martínez (2000, 2002); Mesta Fernández (2000).

Table 5.3 reports each *municipio*'s department charged with environmental and ecological administration, and the existence, or lack thereof, an ecology office and/or ecology commission. Three of the five *municipios* have created separate ecology offices, with Navajoa not far from being added to this list. Also, all of the *municipios* except Navajoa have an Ecology Commission. Interestingly, although Hermosillo does not have a *reglamento*, they do have a separate ecology office. This office is a *subdirección* with five employees, as of 2001. It was founded in 1998 by the then-new PAN administration, with the idea of consolidating efforts related to ecology. In other words, it was to integrate the ecology functions of other city divisions such as public services and forestation, to provide a focused effort towards ecology (Duarte 1998, 2000). Thus, Hermosillo stands out as a case where there is not enabling environment, no local environmental legislation, yet capacity for greater decentralization in other arenas.

The development of separate administrative units created specifically to deal with environmental and ecological issues represent modest progress in the process of decentralization in general and administrative decentralization of environmental policy

specifically. However, because they are *subdirecciones* rather than outright departments, they are “lower on the list of things that need to be addressed” (Martínez 2000).

Moreover, these administrative reforms are largely formal changes to the status quo and do not guarantee substantial improvement in environmental protection at the municipal level. It is suggested that even in the *municipios* with *reglamentos*, the majority of municipal environmental commissions are ad hoc bodies utilized mainly to deal with public protest or environmental emergencies. Also, Ortuño (2000) notes that in many of Sonora’s *municipios* there are few to no personnel dedicated to working with environmental issues. Therefore it is necessary to rely on state and federal agencies and personnel. As with the state level of government, the main reason behind lack of personnel is a limited budget. Exploring each *municipios*’ budget allows for some insight into institutional development capabilities for decentralization.

Municipal Budgets and Resources for Environmental Agencies

Examination of the municipal budgets reveals that at the municipal level environmental agency resources are even less than at the state level. Furthermore, this lack of resources affects the *municipios* agencies’ ability to hire and keep trained personnel and to acquire technological support (such as computer resources).

Table 5.4: Sonora's *Municipios*' 2000 Budgets and Environmental Agency Budgets

| Municipio | Total Budget | Agency Budget | As % of Total Budget |
|---|------------------|------------------|----------------------|
| Hermosillo (Desarrollo Urbano Y Obras Públicas) | \$539,139,487.00 | \$88,970,877.00 | 0.02% ^a |
| Cajeme (Secretaría de Desarrollo Urbano, Servicios Públicos y Ecología) | \$337,140,055.00 | \$105,048,080.34 | |
| Regulación y Preservación Ecología | | \$722,328.74 | 0.20% |
| Nogales (Dirección de Planeación del Desarrollo Urbano, Obras Públicas y Ecología) | \$242,207,276.43 | \$31,783,700.43 | |
| Equilibrio Ecológico y Protección al Ambiente | | \$574,551.95 | 0.20% |
| Agua Prieta (Política y Planeación del Desarrollo Urbano y Asentamientos Humanos) | \$62,261,302.00 | \$25,944,724 | 0.04 % ^a |
| Navajoa (Dirección de Infraestructura, Urbana y Ecología) | \$163,249,613.56 | \$23,476,500.00 | 0.01% ^a |

^a These are estimated to be ten percent of the agency budget.

Sources: Estado de Sonora, Secretaría de Gobierno. 2000a, 2000b, 2000c, 2000d.

Table 5.4 shows that Sonora's *municipios* have limited fiscal resources to put toward environmental concerns. Isolating budgetary expenditure on ecology is virtually impossible, as most *municipios* list generalized expenditures instead of itemizing expenditures. Only Cajeme and Nogales specifically report ecology expenditure in their budgets. However, because Cajeme and Nogales list ecology expenditures, they can be used as benchmarks for the other *municipios*. Cajeme reported using less than one percent of the budget for the department that houses their ecology agency; Nogales reported using two percent. Thus, to obtain a rough estimate of what the other *municipios* may spend on ecology, I have taken ten percent of the agency budget—a

percentage that is well above what is probably spent, yet gives the *municipios* benefit of doubt and still exposes the limited budget for ecology. This attempt to approximate what is spent on ecology by looking at expenditures at the department or agency level functions as a loose indication of the expenditures. It is also important to recognize that the functions of these departments vary, and thus this will be reflected in their total budgets. Even granting the *municipios* the benefit of doubt, Table 5.4 reflects the lack of fiscal resources spent on environment at the local level. This lack of fiscal resources markedly affects human resource development and institutional development, thus minimizing the local governments' capacity to further the process of decentralization.

As noted, the lack of fiscal resources affects *municipios*' abilities to obtain other types of resources. Two types of resources, human and technological, are reported in Table 5.5. This table reveals the lack of both human and technological resources.

Table 5.5: Human and Technology Resources in *Municipios*' Ecology Departments

| <i>Municipio</i> | Number of Personnel | Technological Resources |
|------------------|---------------------|---|
| Hermosillo | 5 | Limited: access to computers |
| Cajeme | 4 | Limited: access to computers |
| Nogales | 3 | Good: have computers and access to a few other resources (computer programs, etc) |
| Agua Prieta | 1 | Limited: computer |
| Navajoa | 3 | Limited: access to computers |

Sources: Duarte (2000); Gonzales (2000); Martínez (2000, 2002); Mesta Fernández (2000).

Again this limits the *municipios*' capacity to decentralize due to insufficient personnel and/or insufficient computer and other technology to develop their own agencies. For example, in Hermosillo, where the number of personnel is greatest, the environmental agency reports being constantly overwhelmed with requests for intervention in practical

problems⁶², many of which fall outside their formal jurisdiction (Duarte 2000). Putting resources and personnel towards addressing these issues makes it difficult if not impossible for the municipal agency to focus on environmental concerns. Because of this, environmental concerns such as enforcement of Environmental Impact Statement procedures are not generally addressed by the *municipio* and instead force greater reliance on SIUE and other state and federal agencies.

In addition, many of Sonora's *municipios*' resources, particularly the fiscal resources, come from the federal government. The vast majority of taxes and fines collected in the state of Sonora (and all of its *municipios*) are sent to the federal government, which then redistributes the resources. This creates several problems. First, this ties the *municipios* to the federal government, restricting capacity for decentralization—as long as the *municipios* rely on the federal government for a substantial amount of their funding for environmental concerns, they may not be able to move beyond deconcentration. Second, the federal government admits that it has limited funds and thus that it concentrates support on the *municipios* with larger populations (Catalan 1998). This creates a situation where the less populated *municipios*, which are the vast majority in Sonora, lack financial resources, computers, personnel and general resources to make much progress with environmental issues, legislation, and implementation (Martínez 2000). In fact, a number of *municipios* suggest that with their limited training and few resources, agencies are poorly equipped to understand, let alone implement their *reglamentos* (Perez 1998). Furthermore, a substantial amount of the federal funding can be moved around from year to year, requiring yearly re-negotiation among federal, state, and local governments to determine the amount of fiscal resources

⁶² Practical problems noted included trash collection, removal of deal animals and the like.

committed to each project (Sortillon 1998). Together these factors make it difficult for *municipios* to feel secure in the fact that they will have the needed resources to develop environmental programs. This lack of resources, coupled with the tendency of local and state agencies to pass expensive and controversial matters, such as Environmental Impact Statements, to higher authority, ensures a high level of dependence on federal authority⁶³, and undermines public confidence in the capacity of the *municipios* to resolve urgent environmental problems (Mumme 1998c; Rivera 2000; Jose Luis Moreno 2000).

Overall, many of the individuals interviewed (for example Sprouse 2000; López Powers 2001; Gómez Limón 2002) agree with the statement of Ma. Elena Mesta (2000) that the real problems for *municipios* lie with resources for implementation. Without fiscal, human, and technological resources it is next to impossible for *municipios* to make progress and decentralize, even if they do have environmental agencies. To avoid problems, Sonora's decentralization measures must coincide with and increase in resources and other necessary institutional changes (Mesta 2000).

Water Policies

State Agencies Responsible for Water Policies

Sonora's state agency associated with water policies is the Comisión de Agua Potable y Alcantarillado del Estado de Sonora (COAPAES) (Sonora's Potable Water and Sewerage Commission). COAPAES reflects CNA's effort to decentralize provision of urban water services to the states. That said, CNA continues to very much influence COAPAES's budget and operations (Pineda-Pablos 1999; Moreno 2000). COAPAES is

⁶³ According to SEMARNAP personnel, they are trying to change this, but is difficult because *municipio* presidents' think ecology is unaffordable given pressing basic needs (Catalan 1998).

responsible for operations and maintenance of the existing water supply and wastewater treatment systems, construction of new connections to the distribution system, and meeting and collecting fees from the systems' users, but is given limited decision-making responsibility (COAPAES 2002). Although there are local offices in a number of the *municipios*, the agency is directed from Hermosillo.

COAPAES is not a well-respected institution (Mello Lemos and Luan 1999; Moreno 2000). Failure to provide residents with a reliable water-supply service created little trust in COAPAES officials' abilities and willingness to solve problems, particularly among *colonia* residents (Mello Lemos and Luan 1999). Additionally, COAPAES revenues' collection system has been historically very ineffective. Water meters and readings are few and unreliable. Consequently, COAPAES has had no clear control over its own revenues or who owes what to the company (Pineda-Pablos 1999). This in turn affects the agency's revenues and its ability to maintain and repair existing equipment and lines, keep up and improve services, and plan for system expansion. Thus, in 1997 COAPAES followed the federal and state regulations to privatize a number of its activities including fee collection and client relations. The concession was granted to GEMA-Grupo Empresarial para Mejoramiento del Ambiente, a Mexican/English consortium. Overall COAPAES remains somewhat centralized; however, there are cases of decentralization where local agencies have attempted to take up some of the slack left by COAPAES, and with fee collection and client relations run by GEMA.

Just as COAPAES has problems, agencies dealing with water issues throughout the arid Northern Mexico have traditionally experienced problems. In 1989, the National Water Commission (CNA) published a document, *Lineamientos para el Programa de*

Agua Potable y Alcantarillado (Guidelines for the Water Supply and Sewerage Program), that gives an overview of the substandard conditions of water supply management units, including many in Northern Mexico. Among other problems cited for Northern Mexico were lack of technical skills, low levels of revenue collection, and water tariffs that did not match costs levels. The CNA document articulated a policy goal of increasing decentralization and self-sufficiency in the management of water resources (CNA 1989, 17). To this effect, the revised Sonoran water law (1992) granted substantial rights to the state, and complied with the transfer of water responsibility to *municipios* (other border states did not). Yet, despite this legal move toward state to local decentralization, many *municipios* remained under state control. Even today, a decade after the revised water law supporting decentralization, there are still some *municipios* under direct state water services administration (see Table 5.7). This lack of transference to the local level is due in part to the fact that the *municipios* failed to accept responsibility and to the fact that the hydraulic infrastructure required special investment that the *municipios* could not afford, but that the state government could generally provide.⁶⁴

State Budget for Water Policies and Agencies

Sonora's state budget reveals substantially more resources devoted to water agencies than were devoted to environmental agencies (see Table 5.2 and Table 5.6).

⁶⁴ *Municipios* are not obligated to take control of the water systems. The state governor has the right (according to federal constitutional Article 115) to decide which *municipios* are able to take control of the operation of the service (Peralta 2000).

Table 5.6: Sonora's Budget and Water Resources Budget for 2000

| | Total Budget | Urban Development | Urban Development Budget as % of Total Budget |
|-----------------------------|--------------------|-------------------|---|
| Sonora | \$9,930,621,000.00 | \$55,600,000.00 | 0.56% |
| Water Resources Line Items: | | | |
| Rural Potable Water | | 12,600,000.00 | |
| Rural Sewerage | | 4,400,000.00 | |
| Urban Potable Water | | 7,000,000.00 | |
| Urban Sewerage | | 6,700,000.00 | |

Source: Estado de Sonora 2000

Table 5.6 shows Sonora's year 2000 budget for water and sewerage. According to this State budget, \$30,700,000.00 is designated for combined rural and urban water and sewerage. This is fifty-five percent of the development and ecology budget and 0.31 percent of Sonora's total budget. This is substantially more money than is designated for environmental protection, which follows the government's acknowledgement that water is a basic necessity for citizens of Sonora and that the government is not only committed to improving water and sewage services, but is taking action to alleviate water concerns (Castrejon 2000). That said, the equitable distribution of water services remains an important issue. Moreno (2000) has argued that much of the money put into water service infrastructure is designed to help the powerful in Sonora and it is not evenly distributed among the citizens of the state. The fact that COAPAES is slow to respond to citizen complaints in *colonias*, yet reacts more rapidly to the wealthy neighborhoods in Hermosillo, in part reflects this (Mello Lemos and Luan 1999; Moreno 2000).

Municipio Water Policy Agencies

Looking at Sonora's *municipios'* water agencies, *organismos operadores*, reveals some of the blending of state and local rights and responsibilities and thus exposes the

ambiguity surrounding decentralization within Sonora's *municipios*. As previously noted, Sonora's water law transferred rights and responsibilities for water provision and sewerage service to *municipios*, however some *municipios* continue to retain state administration of these services. According to Jose Arreola Ortega, director of COAPAES, in 2000 twelve local governments (seventeen percent) maintained an agreement with COAPES to operate their water service. This is down drastically from 1990 when ninety-eight percent of Sonora's *municipios* had an agreement with COAPAES to operate their water systems (Rodríguez 2000). Although this sounds impressive and does indicate progress in the process of decentralization, the extent to which each government level makes major water related decisions still appears to depend on which level invests more money into the water services. Furthermore, increasing levels of debt at the *municipio* level indicates growing weakness in the transference of water services.

Municipios are not required to take responsibility for water services. This combined with the fact that they frequently do not have resources for hydraulic infrastructure required has kept the state in control of some water systems, although others have chosen to take control of the system and attempt to make it work. Table 5.7 shows that two of Sonora's major *municipios*, Hermosillo and Nogales, are among those whose water systems remain under state responsibility.

Table 5.7: Sonoran *Municipios*' Water Supply Agencies

| <i>Municipio</i> | Water Supply Agency | Level of Government in Charge of Water Agency |
|------------------|---|---|
| Hermosillo | Comisión de Agua Potable y Alcantarillado del Estado de Sonora (COAPAES) (and Comisión de Agua Potable y Alcantarillado de Hermosillo (COAPAH)—the <i>municipio's</i> <i>organización operadora</i>) | State |
| Cajeme | Organismo Operador Municipal de Agua Potable, Alcantarillado y Saneamiento (OOMAPAS) de Cajeme | <i>Municipio</i> |
| Nogales | Comisión de Agua Potable y Alcantarillado del Estado de Sonora (COAPAES) | State Contracted to private company |
| Agua Prieta | Organismo Operador Municipal de Agua Potable, Alcantarillado y Saneamiento (OOMAPAS) de Agua Prieta | <i>Municipio</i> |
| Navajoa | Organismo Operador Municipal de Agua Potable, Alcantarillado y Saneamiento (OOMAPAS) de Navajoa | <i>Municipio</i> Contracted to private company |

Table 5.7 also shows that COAPAES and some *municipios' organismos operadores* have taken advantage of the legal provision that allows water agencies to sign service contracts with private enterprises. For the state and the participating *municipios* the impetus lies in the desire for greater economic efficiency in the utilization of water resources both at the level of fee for service and more efficient regulation or application of norms and standards (Mumme 1998a; Pineda-Pablos 2000). However it also pushes forward decentralization efforts for the sub-national entities, as they (or more precisely those that they contract) are at least allowed to provide the administrative aspects of

water services. Furthermore, at minimum, these privatization initiatives draw attention to the shortfalls in Sonora's current administrative practices and the potential profitability of more efficient service delivery through further decentralization measures.

The fact that Sonora and the *municipio* Navajoa have contracted water services to private companies does not make everyone happy. In fact, there are mixed feelings about services provided not only by the private companies, but also by the *municipios*. Despite these insecurities, as Moote and Gutiérrez (2001, 14) found, it is a minority population that reports insecurities; in fact "the majority [of citizens surveyed] would give more authority to local government than to state or federal government." Citizens agree that with management at the local level, even with private enterprises holding service contracts, they more frequently feel their voice is heard, although this does not necessarily result in changes (Rodríguez, 2000; Moote and Gutiérrez, 2001).⁶⁵ This suggests that even minimal decentralization efforts stimulate citizen demands and encourage local governments to support expanding the breath of their responsibilities in order to extend their control, real or perceived.

Yet, a perception of control at the local level does not necessarily translate into effective control. As Pineda-Pablos (2001, 32) explained in his study of Mexico's Northern border cities' water agencies, a number of Sonora's local water agencies have utilized the appearance of reform to mask the practice of confining "participation in decision-making to a closed clique of influential policy-makers." Thus, administrative

⁶⁵ This attitude may change as citizens realized how many of their *municipios* are falling into debt with the CNA concerning payment of water-related services, now that the *municipios* are in charge of the water agency (Ceballos 2001).

devolution can, but does not necessarily mean more political participation or local accountability.

In assessing Hermosillo's water system, the Alianza Campesina del Noroeste (Alcano) suggests that decision-making is far from transparent in Hermosillo. Alcano also insists changes are needed so that a small group of elite individuals no longer decide on issues such as the price of service for twenty-thousand users who pay for the service (Paredes 2000). Pineda-Pablos (1999) corroborates this, suggesting the patrimonial management of Hermosillo's water service is revealed in the government's unaccountable control of policy-making, in the complete lack of information, and the narrow and manipulated channels for citizen participation. Finally, although there is a consultative council—a body of citizens—within Hermosillo's COAPAES, the members of this council are appointed by the governor or COAPAES administrator, and the council has traditionally played a rather ornamental role with no real power (Moreno 2000). Thus, while some reforms for public participation exist, much of Sonora's water policymaking and administration remains highly formalistic and corporatist. Finally, it is also interesting to note that the area of water policy where agencies have advanced furthest with respect to public participation is the area of water pollution, where federal and state environmental laws provide much greater public access.

The patrimonial management and lack of public participation are not the only questionable operating procedures for Hermosillo's water services. In addition, there is a questionable fiscal situation. The Sonoran branch of the CNA concluded that, "Coapaes has not achieved self-sufficiency for operation costs and that its current operation is supported by infrastructure impairment (fixed active depreciation that do not show

expenses), the non payment of national water rights and financing from suppliers” (CNA Gerencia Estatal Sonora 1996, 114, cited in Pineda-Pablos 1999). All of these factors together may help explain why Hermosillo has decided not to assume responsibility for water service. Jorge Valencia, Hermosillo’s Municipal President⁶⁶ (1997-2000) asserted that water service needs to be controlled by the *municipio*, but only after major network rehabilitation so that the *municipio* will not be economically disadvantaged and will be able to respond to citizen’s demands (Peralta 2000). Thus, although never expressly stated why the *municipio* has failed to take responsibility for water services, it is suggested neither the state nor the federal government would provide funding for network rehabilitation, thus, in order for the local government to improve water service it would need to increase water tariffs. This is a politically unattractive option.⁶⁷ This type of predicament applies not only to Hermosillo, but also to a number of Sonora’s *municipios*.

Municipio Water Agencies’ Budgets

It is much more difficult to assess *municipio* budgets of water agencies in Sonoran than it is to assess their budgets for environmental agencies. None of Sonora’s *municipios* list water agencies as a line item in their budgets. Moreover, even looking at the budgets of the larger departments, within which the water agencies are located does not offer much insight on *municipio*-level fiscal resources for water agencies. This is due to the fact that water agencies are housed in departments often larger and more inclusive than are the environmental agencies. These large departments dealing with public works or public services encompass a wide variety of services and vary substantially from one

⁶⁶ The Municipal President is similar to what the U.S. calls Mayor.

⁶⁷ Other *municipios* have increased tariffs when they took over control of the water systems, and have faced substantial protests from the public.

another, making it difficult to not only estimate budgets for water agencies, but also making it nearly impossible to compare these departments among Sonoran *municipios* or with *municipios* in other Mexican states. Overall, it is difficult to assess *municipio* budgets for water agencies and thus quantify how much control the local level has over fiscal resources for water agencies.

In addition, there is ambiguity surrounding the funding of major infrastructure projects. As asserted by Jorge Antonio Figueroa Cervera, director of Planning and Systems of COAPAH, numerous *municipios*, including many that have taken control of the water agencies, lack the money to build needed infrastructure. For example, in Hermosillo a water treatment plant to deal with black water is needed. In this case neither Hermosillo nor Sonora's COAPAES has the resources to afford this type of structure. Thus it remains necessary, Figueroa Cervera argues, for the federal government to help local governments afford this type of plan (Salazar 2001). This reliance on the federal government limits both the form and degree of decentralization that can occur at both the state and local levels.

Discussion

Environmental Agencies

Within the state of Sonora the establishment of state and *municipio* environmental agencies increases institutional resources for governments, thus giving the appearance of furthering capacity for decentralization. That said, establishment of agencies alone does not guarantee decentralization. It is necessary to have human and institutional capacity in order to have capable, functioning agencies. State and *municipio* agencies are limited in

both of these aspects. For example, at the state level, the capacity of Sonora's environmental agency, SIUE, is said to be on the decline. This sustains or increases Sonora's reliance on the federal government, thus limiting possibilities for decentralization.

Furthermore, state environmental agencies have limited budgets, which adds to problems with appropriate personnel and institutional resources. These agencies, however, are lucky enough to have personnel who themselves increase the agencies' human resources capacities due to their dedication. Moreover, these dedicated employees hold appropriate attitudes—to make improvements where they can, strengthening the functioning of their agencies—another important element of human resource capacity building for decentralization. Even so, there is a problem with employees leaving government agencies and joining the private sector once they are trained. Administrative turnover offsets the benefits of professional dedication and weakens the agencies' capacities, as they are constantly re-training.

At the local level, sixty percent of the leading *municipios* studied have separate ecology offices, and eighty percent have ecology commissions. These numbers show some progress towards greater capacity for decentralization. Furthermore, although environmental concerns do not receive large percentages of the budgets, *municipios* do list general environmental agencies within their budgets and both Cajeme and Nogales have line items for environmental protection. In particular the line item listing shows financial responsibilities as the local level implying delegation. Looking at *municipio* resources outside of the budget, Sonora's *municipios* report limited access to computers and other technology in addition to limited personnel—except for Hermosillo, which

counts five employees in their environmental office. Overall, the limited budgets have left Sonora's *municipios* poorly equipped to understand, let alone implement, environmental policies. This, above everything else, severely restricts the process of decentralization in Sonora's *municipios*.

Water Agencies

Focusing on Sonora's water agencies, overall it appears Sonora has followed CNA's recommendations for water supply management reform—at least formally setting the groundwork for decentralization. The reasons for this are various. First, Sonora may truly believe it is important for the local governments to control of their own water systems. More likely, however, is the fact that Sonora's water agency, COAPAES, has traditionally suffered from numerous administrative problems. It may be that such ineffectiveness has helped promote decentralization, with local governments and citizens pushing for greater control and/or privatization—anything to increase the acceptance of and response to public participation and, most importantly, to improve their water services. Whatever the causes, the number of *municipios* maintaining an agreement with COAPAES to operate their water service is now at seventeen percent, a dramatic improvement from the ninety-eight percent that held these agreements in 1990. This indicates progress in the process of decentralization.

Looking specifically at water agencies within the *municipios*, it is difficult to assess whether they have advanced beyond administrative delegation. Three of Sonora's five major *municipios* now control their local water systems, with the other two controlled by the state. Furthermore, one of the *municipio*-run systems and one state-run system have contracted aspects of their water services to private companies. This change

in administration indicates increasing decentralization. Additionally, it appears changing the water services administrations has increased public participation, although this is not always the case; as was mentioned earlier, a number of the water agencies have utilized the appearance of reform to mask the practice of confining participation in decision-making to a closed clique of influential policy-makers. Thus, administrative devolution does not necessarily mean more political participation or local accountability, but generally it appears to be a positive trend.

Finally, administrative control does not mean that local governments financially control the water agencies. The local government budgets do not reveal fiscal resources for water agencies: the larger departments that are listed are usually called “public works” departments and may or may not contain water agencies. Furthermore, there are no line item listings that suggest resources designated for any type of water works. Finally, many *municipios* lack the money to build needed infrastructure and thus must rely on federal funding to help with their water services. Thus, although it is possible to see some decentralization—water agencies exist and there is some transference of administrative responsibilities—it is unclear just how much progress toward decentralization of water agencies has occurred.

Sonora’s Environmental and Water Policies: Other Influences on Implementation

Moving away from the fiscal, human and technological resources, various other factors affect the general process of decentralization for Mexico’s states and *municipios*. Among these factors are the affects of political competition and opposition party governance, international influence and assistance, and public participation. This section

will explore the overall affects of each of these factors on decentralization, relating them to, but not focusing specifically, on environmental and water policy decentralization.

Political Parties

Tables 5.8a and 5.8b report Sonora’s governors’ and *municipios*’ political parties for the last decade. As noted in Chapter 3, this is important for decentralization because research has shown that it is generally opposition governments that recognize the need to take advantage of the possibilities opened up by political projects to counteract centralization (Rondinelli et al. 1984; Rodríguez and Ward 1994) and because Mexico’s federal government promoted municipal reform mainly in select states and municipalities—those where opposition parties had seen success.

Table 5.8a: Sonora’s Governor’s Political Party

| | 1991 Elections | 1997 Elections |
|--------|----------------|----------------|
| Sonora | PRI | PRI |

Table 5.8b: Sonora’s Municipal Presidents’ Political Parties

| | 1991 Election | 1994 Election | 1997 Election | 2000 Election |
|-------------|---------------|---------------|---------------|---------------|
| Hermosillo | PRI | PRI | PAN | PAN |
| Cajeme | PRI | PRI | PRD | PRI |
| Nogales | PRI | PRI | PRI | PRI |
| Agua Prieta | PRI | PAN | PRI | PRI |
| Navajoa | PRI | PRI | PRD | PRD |

Tables 5.8a and 5.8b also show that the PRI has traditionally dominated both the Governors Office and the Municipal Presidents Offices within the state of Sonora. Change began to take place in 1994, with Agua Prieta electing a PAN municipal president, and continued with the 1997 elections. Of interest in the 1997 elections are a couple of facts. First, when looking at the mayoral positions, most of urban Sonora

remained in the hands of the opposition parties. Of the 11 *municipios* that hold eighty-five percent of the total population, only Nogales (6.4 percent) and Agua Prieta (2.6 percent) were won by PRI. PAN took San Luis Río Colorado (6.3 percent), Caborca (3 percent), and Hermosillo (27 percent). Guaymas (6.5 percent), Empalme (2.3 percent), Cajeme (17 percent), Navajoa (6.5 percent), Etchojoa (3.7 percent) and Huatabampo (3.6 percent) were taken by PRD. Second, the northern border region was decidedly PAN oriented, not only in their municipal president votes, but also their congressional and gubernatorial votes. PRD did better in the southern part of Sonora, and the PRI was spread throughout, although concentrated in the more rural areas (Zambrano Grijalva 1997). The 2000 elections were very similar to the 1997 elections. However, one change of note, the *municipio* of Cajeme switched from a PRD to a PRI municipal president. This gives the PRI three of the five reported municipal presidencies, however, the northern border region remains decidedly PAN and the PRD, which maintained nearly all of its *municipios*, is still strong in the south.

This political pluralism has also encouraged progress in the process of environmental and water decentralization for Sonora. As this applies to the writing of municipal decentralization legislation, it is worth noting that Nogales and Agua Prieta wrote their environmental legislation under PRI control, and not under the opposition parties. However, Cajeme and Navajoa, both of which are were noted for the detail in their environmental legislation, wrote their environmental legislation under the PRD. Hermosillo—which is working on its legislation, but has yet to pass the legislation—made progress under the PAN. Following these same trends, it is also worth noting that the PRD controlled chairmanship of the Sonoran Legislature's Ecology Commission

1997 to 2000, and sought to carve out a pro-environment position in state politics during that time.

This illustrates that although the relationship is not clear-cut, opposition government does seem to be favorably associated with decentralization. Pineda-Pablos (2001) agrees with this, noting that for states such as Sonora, an important outcome of opposition parties gaining political positions, particularly in local government, is that access to power has become more and more competitive. This competition brings with it a more diverse set of opinions and greater transparency in an attempt to win supporters. Pineda-Pablos (2001, 20) backs up his suggestions noting that for Mexico's northern border cities "there is a significant difference in water management among the group of cities that has experienced political *alternancia* and those that remain dominated by the PRI...*alternancia* plays a positive role on improving urban services." Where political pluralism and competitiveness exist in Sonora, there has been support for new forms of policy making, which have obliged PRI authority to be more responsive to previously unprecedented citizen demands (Pineda-Pablos 2001), both of which propel the process of decentralization.

International Influence

International influences also impact environmental decentralization in Sonora. One area of influence comes from monetary resources received from international NGOs such as The Nature Conservancy. In 2000, The Nature Conservancy gave more than three million U.S. dollars to environmental projects within the state of Sonora (Rocha Romero, 2000a; Gallaz Salása 2000). According to IMADES personnel, a substantial

amount of this money was designated for protected areas (preservation of parks in danger, El Pinacate biosphere reserve, and Ajos-Bavispe national forest) and for the bi-national Sonoran desert region.

Another source of international aid has come from multilateral organizations. The World Bank's *Programa Ambiental Frontera Norte de México* (PAFN) (Environmental Program for the Northern Border of Mexico), in addition to NAFTA's BECC and NADBank's programs, and Border XXI help *municipios* take control of their local issues, write clear legislation and improve efficiency of administration. PAFN has worked to strengthen the capacity for environmental policy functions and decentralization of the border states and a select ten border municipalities. From 1994 to 1999, the PAFN provided more than \$43.6 million pesos (\$4.6 million dollars) in equipment and other needed resources and assistance to Mexico's northern border states and eligible *municipios*—the *municipios* must be located with the border zone.

Likewise the BECC and NADBank distribute money, expertise and other resources to border *municipios* in an attempt to improve decentralization. Similar to the PAFN regulations, recipients of BECC and NADBank funding must be located within the border zone. Only nineteen of Sonora's seventy-two *municipios*, about twenty-six percent, fall within the border zone. Thus the majority of Sonora's *municipios* are ineligible for the PAFN, BECC, and NADBank funding or technical resources.

Table 5.9: PAFN Support and BECC-NADBank Projects in the State of Sonora

| | |
|---|---|
| Municipalities with PAFN funding (1994-1999) | San Luis Rio Colorado, Nogales |
| % of Sonora's Municipalities with PAFN Funding | 3% |
| % of Sonora's Border Municipalities with PAFN Funding | 11% |
| <i>Municipios</i> with BECC-NADBank projects (1994-2000) | San Luis Rio Colorado, Naco, Agua Prieta, Nogales, Sasabe, Puerto Penasco |
| % of Sonora's <i>Municipios</i> with BECC-NADBank projects | 8% |
| % of Sonora's Border <i>Municipios</i> with BECC-NADBank projects | 32% |

Table 5.9 shows us that only six of Sonora's seventy-two *municipios* were directly assisted by the PAFN and BECC-NADBank projects: two received support from PAFN and the same two, plus an additional four received support from BECC-NADBank. Therefore, these international resources work as an incentive to decentralization for a relatively small percentage of Sonora's *municipios*. However it is also important to note that of the *municipios* that received support from these international organizations, the two that received support from both sources have written environmental legislation.⁶⁸ In addition, Agua Prieta also has environmental legislation, but it was enacted before 1994—the beginning of the support. Thus, within Sonora, both of the *municipios* with funding from PAFN have decentralized, or soon will, and three of the six municipalities supported by BECC-NADBank have decentralized—although Agua Prieta is an exception since it did not pass its legislation within the time period of these international programs. This suggests that even if support from the international organizations has not

⁶⁸ Although both have written the legislation, San Luis Rio Colorado's legislature has yet to pass their legislation.

directly led to the writing of legislation, it generates a supportive atmosphere for the writing of environmental legislation.

A final source of international aid is the Border XXI U.S.-Mexico Border Community Grants Program. This grant program was designed to help build capacity for environmental and natural resources protection at the local level. The program helped communities to develop area-specific solutions to their environmental problems and environmental education opportunities. These grants were awarded in 1995 and 1997⁶⁹, and are described in Table 5.10.

Table 5.10: U.S.-Mexico Border Community Grants

| Year | Location | Project | Summary |
|-------------|---------------------------------|---|---|
| 1995 | Nogales, Sonora and Nogales, AZ | Ambos Nogales Environmental Action Plan | Public outreach program and environmental information centers |
| 1995 | Nogales, Sonora and Nogales, AZ | Mariposa Community Health Center | Program for reducing and recycling household solid waste |
| 1995 | Western Sonoran Desert | Developing an Environmental Strategy for the Western Sonoran Desert | Workshops to help communities to better understand their relationship to the Desert. |
| 1997 | Sonora, AZ, Baja California, CA | Border Environmental Resource Guide | Published and distributed a Guide of environmental resources on the border. |
| 1997 | Sonora, Baja California | Colorado River Delta Restoration | Evaluation of water quality and flows in the Colorado River riparian areas; assessment of wetland and near-shore marine resources |
| 1997 | Nogales, Sonora, Nogales, AZ | Nogales Community Outreach | Enhanced ability for public outreach in environmental and health issue-areas |

Source: USEPA 2001.

⁶⁹ Additionally they were also to be awarded in 2000, however by December 2000, the awards had not yet been announced.

As a part of the Border XXI program, the USEPA works together with government agencies within Mexico. For example, the USEPA has an air quality program in Nogales—US dollars are used to improve air quality in Nogales, Sonora, which leads to improved air quality in Nogales, Arizona (Morales 2001). Although focusing mainly on the border, there are rare occasions when money was given to areas outside of the 200 km border zone. Hermosillo was lucky enough to be one of these exceptions. The USEPA and the World Health Organization have recently combined forces to help Hermosillo work with their environmental conditions (Arredondo 2000b).

Public Participation: Non-governmental Organizations and Governmental Agencies

Public participation is a final factor that can influence decentralization. The standard assumption is that more participation or better participation favors increased competition and a greater diversity of opinions, which in turn generally promote greater decentralization. Although it is difficult to assess the state of political participation in environmental policy and its specific impact on decentralization, several indicators such as the presence and activity of non-governmental organizations (NGOs) do shed some light on the character of political participation in Sonora. Looking at NGOs within Sonora will provide an indirect indication of decentralization within Sonora.

NGOs are one important means for the public to acquire information and gain a better understanding of environmental issues and concerns. Within Sonora, NGOs are important for increasing public participation because although many people know the state and *municipios* are dealing with environmental issues, they are not informed about the details or the situations. For example, Martínez (2000) noted that although people

know there are laws that make littering illegal, they do not know “details” such as the name of the law, or what else it says. Thus, NGOs help to inform the public and increase public participation. They also contribute to governmental accountability. Búrquez (1998) argues that NGOs address the “gulf of social trust” between civic society and government, by making the lack of action apparent. When governments provide rhetoric in place of action, NGOs and their public constituencies may call them on it. Generally, NGOs utilize increased public awareness and participation to put pressure on governments and thereby influence environmental policies.

Keeping track of NGOs along the US-Mexico border can prove to be a difficult task—they have a tendency to come and go. However, counting the environmental NGOs (those that have a central focus on the environment) that are established can give us a snapshot view of avenues of influence and selected public participation. That said, in Sonora in 2001, 11 environmental NGOs were active according to the Americas Program Director at the Interhemispheric Resource Center (Kourous 2001) and records from the *Encuentro Fronterizo*⁷⁰ (2001) (see Table 5.11 and Appendix B).

Table 5.11: Environmental NGOs within Mexico’s Northern Border States

| State | Number of Environmental NGOs |
|-----------------|------------------------------|
| Baja California | 23 |
| Sonora | 11 |
| Chihuahua | 15 |
| Coahuila | 4 |
| Nuevo Leon | 4 |
| Tamaulipas | 4 |

Sources: G. Kourous (2001) and *Encuentro Fronterizo* (2001).

⁷⁰ The *Encuentro Fronterizo* is an annual gathering of NGOs, academics, government officials and concerned citizens examining and discussing the environment and its related concerns along the US-Mexico border.

Table 5.11 shows us that Sonora has a substantial number of NGOs that the public can utilize as an avenue for group public participation. Although, not surprisingly, the majority of these NGOs are located in Hermosillo (see Appendix B), the few that are not located in Hermosillo are spread out around the state so that people in a number of the *municipios* may utilize these avenues for public participation.

Public participation is also an issue for governmental agencies. It is a stated goal at the federal level and a stipulated objective of Sonora's *Plan Estatal de Desarrollo 1998-2003* (Sonora's State Development Plan 1998-2003). As such, public participation is an issue for many of the federal agencies located within the state and the state and municipal agencies. Following this, most of the state and federal government officials interviewed suggested that Sonora has a favorable degree of public participation, exceeding that found in many of the other Mexican states. Local officials and social groups, however, tend to disagree with this. For example, an employee of the Udall Center in Tucson, Arizona (2000) explained how SEMARNAP would call public meetings, then change the date and/or location, and not publicize the changes as much as "they should have been publicized." To add to this, not infrequently industries with a stake in environmental issues will bus in dozens of people, often from out of state, to represent them at public meetings. Thus outnumbering the local community members. Therefore the "public participation" that exists comes mainly from industry and interest groups that are generally tied to the government. This "public participation" does not generally include "Joe Public" (Udall Center 2000). However, that said, the Udall Center employee also stated, "Mexico has improved and continues to improve, even though things are not perfect. There are people in the government, at all levels, who are

committed to their jobs and to concepts like public participation. It is just a slow change for the Mexican government as a whole.”

One SEMARNAP employee noted that “often there are citizens waiting for a meeting with a SEMARNAP official—this is an accepted and fundamental part of political life in SEMANAP within Sonora. The offices are open to everyone, and a meeting can always be arranged” (Dedina 2000, 76). Thus public participation may not occur at local meetings, but instead there may be more of a personalizing of politics that opens the system to all people. However, it is also important to note that meetings may be arranged, but not always with the desired personnel. For example, in 2000 Julia Carabias Lillo, director of SEMARNAP had a 10-minute meeting scheduled with NGOs concerning environmental issues surrounding Molymex. Carabias left without receiving the NGOs apparently due to a “full schedule” (Arredondo 2000a). Additionally, José Luis Moreno V. from El Colegio de Sonora, noted, “Government officials will talk about public participation and such, and they will tell you that there is public participation, but in reality the NGOs and other groups that want to participate have very limited resources and access” (2000). He went on to describe how, in his opinion, it is still a traditional way of functioning, where the NGOs may get a chance to question the government officials, but ultimately the government officials do what the small group of wealthy, powerful individuals want.

At the state and local level, public participation appears to be improving. This is due not only to government officials “seeing the light” and attempting to deal with the competition created through *alternancia*, but also due to the aforementioned NGOs pushing the government officials and agencies to work more directly with the people.

Another positive influence, the Hermosillo newspaper, *El Imparcial*, has established itself as a powerful broker for public interests. *El Imparcial* has emphasized community opinion, surveying, and publicizing public needs and demands (Sortillon 1998). For Sonora, and particularly within the *municipio* of Hermosillo, there is evidence of greater public awareness and enhanced public participation across a range of civic concerns including water management and environmental protection (Pavlovich Robles, 1997; Montesinos Cisneros, 1997; Mumme 1998a). Furthermore, personnel within Hermosillo have stated that, despite a lack of resources and the still-developing public participation program, they are serious about developing a solid program to respond to public concerns (Landgrave 1998).

Discussion

Within this section three factors that affect decentralization were discussed: political competition and opposition parties, international influences, and public participation expressed through NGOs. Sonora's state government has consistently maintained PRI leadership; however there have been affects from opposition parties. At the state level, the PRD has made its presence felt, particularly with the chairmanship of the Legislature's Ecology Commission. At the *municipio* level the PAN has made inroads within Sonora's northern *municipios*, and the PRD has a greater presence in the south. Control of the municipal presidency by opposition parties does appear to somewhat coincide with greater emphasis on developing environmental policies. Although the relationship between opposition governance and efforts to promote

decentralization is by no means clear-cut in Sonora, opposition governance does seem to modestly favor decentralization.

International influences also affect environmental decentralization in Sonora. Support from the BECC and NADBank in addition to Border XXI and World Bank's PAFN have all worked to strengthen the capacity for environmental policy functions and decentralization within Sonora. For Sonora's *municipios* that fall within the border zone and are eligible for receiving resources from these international agencies, there has been some capacity building for decentralization. That said, the vast majority of Sonora's *municipios* are ineligible for PAFN, BECC or NADBank resources, thus Sonora does not benefit to the same degree that other states do.

Finally, public participation, specifically the existence and activity of NGOs, has made slow yet steady progress over the past decade, contributing to the advancement of decentralization of environmental and water policies within Sonora. NGOs are noted for informing the public and encouraging greater public participation, in an attempt to influence decision-making. In this way they contribute to decentralization. Additionally, avenues for information, specifically with the local newspapers, are slowly increasing. Local and regional newspapers have led in this process. Looking at an actual case in Sonora helps illustrate where changes in environmental and water decentralization have occurred, as limited as they may be.

The CYTRAR Case

One case that illustrates the political and administrative liabilities arising from low capacity for environmental and water decentralization is the dispute over the

CYTRAR hazardous waste depository. This issue, which arose in late 1997, involves a dispute between civic activists and government authorities over the potential threat to public health, ecological values, and water contamination due to CYTRAR's location, six km from the *municipio*⁷¹ (Bejarano 1997).

Citizens' groups and NGOs in Hermosillo were assertive in making demands of local government surrounding the issue of CYTRAR, a municipal toxic water depository that operated under contract with the *municipio*. The *Coalición de Organismos Cívicos Contra el Tiradero de Cytrar*, a coalition of citizens and NGOs, organized non-violent civic resistance protesting the technical viability and lack of public participation in decisions regarding hazardous waste confinement, as well as legal questions regarding CYTRAR's proximity to Hermosillo. After a year of protesting, the citizens came to an agreement with the state and local authorities that would have permitted members of the coalition to participate in a joint inspection of CYTRAR, to determine if the dump's operations were resulting in environmental damage and groundwater contamination. However, the inspection never took place, all negotiations between the coalition and the government broke down, and protests persisted—crossing boundaries of what was traditionally considered appropriate political action (Ochoa O'Leary 2002). Then in late 1998 the resistance was successful in persuading the municipal president of Hermosillo to take the initiative in obtaining a commitment from TECMED, CYTRAR's owner, to relocate the facility further from the city in compliance with federal and state regulations. The municipal president did this on his own initiative with minimal involvement of federal and state authorities (Martínez 2000; Mumme 2000). Shortly thereafter, the INE

⁷¹ Mexico's federal regulations state that toxic waste dumps need to be at least 25 km from city limits.

suspended the permit to operate due to “irregularities” (Rocha Romero 2000b, 2000c; Martínez 2000).

At this time the NGOs also filed a petition with the Commission for Environmental Cooperation (CEC)⁷² to address the environmental and water irregularities. With this came an international investigation and additional pressure on Mexico’s federal and state governments to resolve the situation in a manner that addressed the public’s concerns. In 1999 CYTRAR was closed. And, despite Mexico’s claim that some confidentiality is necessary due to security reasons and thus it could not fully comply with CEC’s requests, in August 2002, CEC recommended that a factual record be developed on allegations that the government of Mexico is failing to effectively enforce its environmental and water laws concerning the closed CYTRAR facility.⁷³

Even with the eventual closing of CYTRAR, the NGOs were not completely satisfied. The social groups were dissatisfied with the state and federal governments’ continual support of TECMED, and resistance of concessions on toxic waste imports. They criticized the local government for lack of a formal contract with TECMED, for engaging in negotiations behind closed doors, without public participation, and for lack of procedural guarantees of public accountability—issues of procedural and political relevance. These complaints created a situation of tension between the local government and the social groups. The social groups saw the CYTRAR situation as politics as usual, lacking in transparency, and thus suggesting corruption and continuation of corporatism

⁷² CEC is an international organization established with NAFTA to address regional environmental concerns and conflicts and to promote effective enforcement of environmental law.

⁷³ CEC’s factual record recommendation and Mexico’s responses are available on the CEC web site, at <http://www.cec.org/citizen>

in the government. The local PAN government accused the NGOs of partisan loyalties to the opposition party, the PRD, and attempting to use the situation for political gain.

After all is said and done, the CYTRAR case is interesting for a number of reasons. First, it shows the potential power of concerted civic mobilization in municipal governance. The greater emphasis given public participation in national, state and municipal laws exposes officials and managers to increasing levels of political scrutiny. Additionally, the officials are clearly more sensitive to the demonstrated power of civic activism on matters of local importance and more aware that they need to work within a realm of transparency if they plan to operate as a negotiator among private interests, the various levels of government, and citizens. Connected to this, the NGOs leading civic mobilization on environmental issues now recognize the power of using the existing environmental laws and using NAFTA's environmental side accord, organizations and regulations, and complementary agreements. Thus, even with a limited audience and resources, it is possible to work the system from the bottom up.

Second, the action taken by the municipal president of Hermosillo was noteworthy. A *municipio* does not exercise operational jurisdiction over such toxic dumps or depositories that operate under federal license and political oversight (Mumme 1998a, 9; Verduzco 2000). However, *municipios* are administratively entangled in the regulatory processes surrounding environmental and water policies, and thus are a target for citizen complaints. The fact that the *municipio* government took the unprecedented action of obtaining a commitment from TECMED demonstrates that despite federal regulations concerning the environment, it is possible for the local government, which is

usually administratively limited in the regulatory process, to take action and make a difference in these situations.

Finally, the case of CYTRAR reveals that while the level of participation has not increased dramatically, and while the public information approach is still top down, there are greater opportunities for civic activism. David Ortiz Reina (2001), member of the NGO, *Red Ambiental Frontera*, agrees with this, noting that even with the change in government, from PRI to PAN, there has not been a substantial change in the government's style of public informational forums, but the public's attitude toward participation is beginning to change.

Overall, CYTRAR highlights the change that is occurring with Hermosillo's local politics. This change is imposing additional constraints on environmental management and is introducing a new dynamism in the development of policy solutions to local concerns. CYTRAR also reveals how greater civic activism, concurrent with greater political competition, now appears to be creating new opportunities for political entrepreneurs while subjecting traditional policy managers to greater public scrutiny and accountability. This new political context means that in the future public participation is likely to be more prominent in the development and enforcement of local environmental policies. Finally CYTRAR points to the need for both the creation of *municipio* level legislation and recognition of established administrative processes that make the local government more responsive to citizens and more transparent with their actions. These changes would not only increase the legal capacity of the local government, but would improve citizens' perception of local government adding to institutional capacity necessary for increased decentralization.

Conclusions

Environmental and Water Policies

Within the state of Sonora, it is possible to find evidence of modest levels of increased decentralization for both environmental and water policy. The basis for this progress can be gleaned from characteristics surrounding the decentralization process. First, a review of environmental legislation revealed a state quick to react to federal mandates for decentralization legislation, although much of the legislation copies federal policies, is quite ambiguous, and does not focus on local conditions. The legislation also centers much of the capacity for environmental protection and provision at the state level of environmental services. At the local level, the *municipios* have been slow to follow the lead of the state. Not only are there numerous *municipios* that have yet to adopt an environmental *reglamento*, but many of those that are written and adopted lack the needed clarity for strong environmental legislation. That said, it must be noted that the mere existence of local legislation (where it exists) is evidence of formal environmental decentralization. Thus, at the state level there is an enabling environment creating some capacity for environmental decentralization, however at the local level the enabling environment is weak and thus there is much less capacity for decentralization.

Water legislation in Sonora is even less well developed than environmental legislation. Water legislation does exist at the state level. Furthermore the legislation grants the state substantial control. At the local level, we do not see this same base. Despite the fact that the state legislation accords local governments various responsibilities, and that the federal and state agencies purport the need for more local control, actual water policy legislation at the *municipio* level is virtually non-existent.

Even so, there have been some legal changes as the local governments have taken on more responsibilities surrounding water systems. Directed by state legislation, local governments have taken on management tasks, although their decision-making for and actual administration of water systems is still very minimal. Thus, for decentralization of water policy, we see an enabling environment created at the state level, but the lack of one at the local level. Overall for both environmental and water legislation, there is a lack of formal frameworks establishing a clear division of legal rights and responsibilities. This is particularly true for the *municipios*. This limits the sub-national governments' capacity for decentralization, particularly impairing attempts to achieve devolution of either environmental or water policies.

The second group of issues this chapter looked at was the environmental and water agencies established to deal with statutory responsibilities as well as the state and *municipio* budgets that support these agencies. In general the findings suggest some movement toward administrative decentralization and limited movement toward economic decentralization. Within the environmental arena, the mere existence of agencies at the state level and also within each of the five *municipios* shows a structural effort to disperse administrative responsibilities from the federal to state and state to local levels of government. At minimum there is a structure in place to deal with increasing responsibilities that may be transferred to sub-national governments. That said, there is insufficient financial backing for these agencies showing a lack in economic decentralization. This picture may not be as bleak as it first appears. True there are insufficient funds, yet the budgets reveal line item listings for these agencies at the state level and even within a few *municipios*' budgets. This does not suggest immediate

decentralization, however it does guarantee greater recognition and possibly future transference of greater budgetary responsibilities. Finally, for both the state and local levels, the lack of fiscal resources lessens human and institutional capacity for environmental agencies. Case in point, the environmental agencies would benefit from more computers, for data collection, communication and record keeping and from the ability to pay higher wages, reducing the exodus of state personnel to the private sector.

Establishing the possibility of administrative and economic decentralization for water policy is a little more difficult. Overall it appears Sonora has followed CNA's recommendations for water supply management reform—at least formally setting the groundwork for decentralization. Water agencies have been created at the state level, and to some degree at the local level, although two of the five *municipios* have not taken responsibilities (and thus have not created local level agencies) to deal with water services. Additionally a number of the water agencies have utilized the appearance of reform to mask the practice of confining participation in decision-making to a closed clique of influential policy-makers. Thus, for a resource such as water, administrative delegation does not necessarily mean more political participation or local accountability. Finally, the apparent lack of fiscal resources—this is clear at the state level but near impossible to decipher at the local level—is one important cause of a lack of progress toward decentralization. The state agencies do have some funding, due to the fact that water is a basic necessity, putting it high on the list of policy concerns. However the states are also still reliant upon the federal government not only for monetary resources but also for the technology and expertise that they cannot afford. At the local level this trend is intensified, with reliance not only on federal agencies, but on state agencies as

well. For water policies, there are suggestions of slowly increasing decentralization, including minimal privatization, however the undercurrent is still reliance on federal or federal and state governments. Overall, for both environmental and water agencies, limited budgets have left Sonora's *municipios* poorly equipped to understand, let alone implement policies. This above everything else is severely limiting the process of decentralization in Sonora's *municipios*.

Finally, the last section of this chapter explored a set of three factors that can affect decentralization within the state of Sonora: opposition parties, international influences, and public participation, including NGOs. Sonora has remained a state under PRI leadership, although the state legislature has felt the presence of opposition parties and some *municipios* have had opposition leadership. Because the state has maintained its partisan status quo at the governor's office, it is more difficult to decipher how the opposition parties at the state level have affected decentralization; although the PRD's control of the Sonoran Legislature's Ecology Commission 1997 to 2000 did result in more environmentally friendly legislation. It is easier to draw these linkages at the local levels, in the *municipios* where there has been a change in party leadership. In the *municipios* that have experienced *alternancia*, or a change from PRI leadership, there is more transparency, more public participation, and greater progress toward the development of, if not achievement of decentralized environmental legislation. Furthermore, it appears that environmental *reglamentos* have been furthered more under opposition governments than under the PRI. As noted previously, a positive link between opposition parties and decentralization is rather weak in Sonora, yet a case can be made that opposition governance has been conducive to environmental decentralization.

International influences also appear to have moderately affected environmental decentralization in Sonora. Resources received from programs such as BECC and Border XXI have provided recipients with additional infrastructure, administrative experience and political experience with more open and transparent processes of decision-making. All of these things support advancement in the process of decentralization. Unfortunately for Sonora, the vast majority of its *municipios* does not fall within the border zone, and thus many of Sonora's *municipios* are ineligible to receive resources from the international agencies. Because of this, although the international resources appear to make a difference in these *municipios* located on or near the border, overall the international influence is more limited in Sonora than it is in other border states.

Finally, the NGOs in Sonora have made a small but positive impact on decentralization. The NGOs have opened up more possibilities for increased public participation. There is hope that these experiences involving the increased possibilities for public participation will provide Sonora's social actors with the experience and confidence to insist on greater opening of state and *municipio* level environmental and water policy-making in the future. That said, and as the CYTRAR case clarified, at the current time available evidence reveals only minimal change in the level of actual public participation in environmental and water affairs.

A Larger Picture: Sonora

In sum, looking at the big picture for the state of Sonora, it is possible to draw a few conclusions for environmental and water policy decentralization. First, generally speaking, in the past two decades Sonora has seen progress in the process of

decentralization. Environmental and water legislation and agencies have been developed at sub-national levels. This suggests a move to enhance, at least the appearance of greater emphasis upon efficiency and accountability, and a growing responsibility of citizens in policy making and implementation. Second, *municipios*' enabling capacities have nominally increased for both environmental and water decentralization. As a part of this, there are more stakeholders who are working together to improve environmental and water conditions within local communities. However, greater coordination between the state and local governments including clearly defined rights and responsibilities would increase progress of environmental and water decentralization. Finally, the fiscal, human and institutional resources, although increasing, are lagging behind the development of legislation and agencies, causing further delays in the process of decentralization.

As presently implemented, Sonora's decentralization of environmental and water policy involves all four modes of decentralization: deconcentration, delegation, devolution and even minimal privatization. Deconcentration, delegation and devolution can be found with environmental policies and deconcentration and delegation, with minimal privatization with water policies. The distinction between the two is not surprising due to the fact that water is seen as a basic necessity, while protection of the environment is not. Water policies have higher priority at all levels of government. Consequently, the federal and state governments appear less willing to allow for increased involvement in policy-making by local governments—at least in the areas of fiscal resources and technology. And local level governments appear less eager to put through legislation and take control of such a vital, and thus at times controversial, resource. On the other hand, with environmental policy, we see more progress in the

process of decentralization with federal and state agencies more likely to give up control and *municipio* agencies more willing to take responsibilities.

Overall there still are many obstacles that remain, and which cause deconcentration to be the dominant form of environmental and water decentralization within Sonora. One of the main obstacles to the process of decentralization in Sonora is a lack of coordination between the state and local governments. This lack of coordination is due in part to the lack of clearly defined rights and responsibilities for each government level, which creates a tendency to push the resolution of environmental or water problems to a higher level of the political system. The lack of coordination is also due to *municipios* protracted timeframes to write and adopt local regulations, limits particularly the *municipios*, to deconcentration.

A second obstacle to progress with environmental and water policy decentralization is the lack of resources, and thus lack of capacity, for implementation of policies. Without fiscal, human, and technological resources it is difficult for the state and its *municipios* to broaden the range of their administrative commitments beyond their more traditional and established functions. Furthermore, the development of legislation in the absence of *reglamentos*, matching resources, or creation of additional institutional capacity, has added new administrative responsibilities to overburdened and financially strapped state and local governments. These factors arguably hinder progress towards decentralization beyond the existing deconcentration of federal power in the state.

Possible Application to Mexican Decentralization

A single case is not sufficient to draw conclusions about the process of decentralization within the country of Mexico. However, it is possible to search for trends within the case and suggest how they could possibly be instructive for general environmental and water decentralization in Mexico.

Sonora has revealed that decentralization is a highly complex political process, yet one that is beginning to open new opportunities for local level engagement and initiative for Sonora's environmental and water policy processes. With decentralization comes the added benefit of increasing numbers of ideas, concerns, and viewpoints. Although this can lead to difficulties in obtaining short-term changes in legislation, it does help with longer-term acceptance of policies. As was suggested in the CYTRAR case, when citizens feel they have a voice, or at least a representative, they are much more likely to help make policies successful. On the other hand, if the public feels their political party's platform is not being heard, or their voices are not receiving due attention, they are much more likely to find dissatisfaction in not only the policy outcome, but with the system as a whole. Thus, as decentralization within Mexico begins to open new opportunities to the public, the public is more likely to involve themselves in political issues in general.

Finally, the case of Sonora has pointed out that decentralization is not just a political goal; rather it is a political necessity. This is reinforced by the broader demands for political transparency and the greater activism of social forces at the municipal and state levels. As seen in the case of Sonora, the public is gaining experience and motivation to no longer allow the federal government to make political decisions that

affect their quality of life. Particularly with water policy issues, state and local governments in addition to NGOs and the public are demanding a greater say in what are deemed acceptable policies. Thus, for Sonora, or any other political entity in Mexico, to move forward politically, it needs to open up the policy system and include actors from all levels of government in addition to the public.

Chapter 6: Baja California

The second case this study explores is the state of Baja California. This chapter proceeds by first giving a general description of Baja California and its geographical and economic conditions. The chapter then discusses Baja California's legal framework. It follows with a look at the forces affecting the implementation of environmental policies. The chapter concludes with a discussion of the information presented and its relation to the overarching concepts of environmental decentralization and water decentralization.

The State of Baja California: Overview

Location and Climate

The state of Baja California is located in the extreme northwest corner of the Mexican Republic. Baja California is bounded on the north by the U.S. states of California and Arizona; at the northeast tip by the Mexican state of Sonora, the only land area that joins the Baja California peninsula to the rest of the country; and on the south by Baja California Sur. To the west of Baja California is the Pacific Ocean and to the east is the Gulf of California. With an area of 70,113 square km,⁷⁴ Baja California comprises 3.7 percent of the landmass of Mexico, making it Mexico's twelfth largest state.

The climate of Baja California is hot and dry, but the state's geographical location gives it a well-defined winter. The state receives less than ten inches of rainfall annually and has a limited supply of water, coming mainly from the Colorado River. Ecological

⁷⁴ This area does not include the insular territory.

patterns that exist within the state include the Sierra Juárez and the Sierra San Pedro Mártir mountain ranges, subtropical deserts and narrow coastal plains along both the Pacific and Gulf coasts. Additionally, the Mexicali Valley, characterized by little precipitation and major temperature fluctuations, is important to the agricultural sector of the state. The state hosts three national parks⁷⁵ and five biosphere reserves.⁷⁶

Population and Economy

According to Mexico's 2000 national census, Baja California counts more than 2.4 million people in its population. The population is distributed in five *municipios* (Ensenada, Mexicali, Tecate, Tijuana and Playas de Rosarito) with nearly fifty percent of the population residing in the *municipio* of Tijuana. Ninety-one percent of Baja California's population lives within urban regions, with the remaining nine percent residing in rural areas.

One of the most important economic activities within Baja California is the variety of national and foreign industries located on the Northern border. Most notably, the *maquiladoras* produce electronic, textile, and wood products for export. According to state officials, Baja California is host to thirty-five percent of all of Mexico's *maquiladoras*. In addition to the *maquiladoras* the strongest industry in Baja California is fishing and shrimping. Other important activities include cottonseed and food processing, fish packing, and manufacturing of beer, wine and soap. Agricultural crops have expanded in recent years, and now Baja California counts cotton, wheat, grapes,

⁷⁵ The national parks include: Parque Nacional de San Pedro Mártir, Parque Nacional Constitución del 1857, and Lower Colorado River Delta.

⁷⁶ The biosphere reserves include: El Vizcaíno, Sierra La Laguna, Isla Rosa, Isla Buadalupe, and Isla del Golfo.

olives, asparagus, tomatoes and cauliflower among its major crops. Finally, tourism is also playing a substantial economic role within the state.

State Government

The state government in Baja California is similar to Mexico's other states' governments. It has the typical three branches, with the majority of the power traditionally lying in the hands of the Governor who exercises executive power. The Governor is elected every six years. The rest of the executive branch is comprised of a General Secretariat of Government, which has limited responsibilities, and four state executive agencies, Secretariat of Finance, Secretariat of Planning and Budget, State Attorney General, and The General Office of Ecology, each of which are charged with implementing state laws. The judiciary within the state of Baja California consists of a Superior Tribunal of Justice (state supreme court), Civil Courts, and Criminal Courts. Legislative responsibilities are carried out by the state Congress, comprised of representatives elected every three years.

The Legal Framework for Environmental Protection and Water in Baja California: The Formal System

As with Sonora, the three levels of government, federal, state and *municipio*, are all involved in the formal system for environmental protection and water management in Baja California. Environmental and water legislation and implementation agencies are found at each level of the system, with state and municipal powers remaining at least partially subsidiary to federal authority. Even where a genuine devolution of formal authority is found in Baja California, the *nested fail-safe* mechanism of deferring action

to federal power when capacity is lacking at the state or local level still applies. Thus, for both Baja California's environmental and water areas there has traditionally been domination by federal institutions. With recent developments in the legal framework for both environmental and water policies, this trend appears to be beginning to change.

Environmental Legislation in Baja California

State Environmental Legislation

The Baja California Constitution contains no normative provisions regarding environmental protection and no explicit references to legislative power over environmental matters. However, the Constitution does provide the legislature with the power to legislate over all branches of the state administration.⁷⁷ Consequently, the legislature has indirect power over the state's environmental issues.

Due to this lack of explicit references for legislating environmental protection within the state Constitution, on February 29, 1992 Baja California's government promulgated the Law of Ecological Balance and Environmental Protection of the State of Baja California. This law, which follows the basic structure and scope of the federal LGEEPA, is the centerpiece of the state's legal framework for environmental protection. The law addresses the preservation and restoration of ecological balance and the protection of the environment within the state.⁷⁸ Overall the law seeks to prevent and control air, water and land pollution, protect natural areas within the state, and ensure a

⁷⁷ Political Constitution of the State of Baja California, Article 27, § I.

⁷⁸ Law of Ecological Balance and Environmental Protection of the State of Baja California, Article 1.

balance between the use of natural resources and protection of the environment.⁷⁹ More specifically, the law addresses the relationship of interdependence among the elements that comprise the environment and which make possible the existence, transformation and development of human beings and other living creatures.⁸⁰

Although the scope of Baja California's environmental law is broad, it provides the basis for the establishment of instruments for policy application, the coordination of relevant public agencies, the promotion of public participation, and the distribution of environmental jurisdiction between the state and municipalities. The law also aims to promote sustainable economic development for the improvement of quality of life and provides that the state government is to facilitate the process of decentralization of authorities and resources to the *municipio* governments in the area of environmental protection. In general, the Law of Ecological Balance and Environmental Protection of the State of Baja California provides that *municipios* are to undertake actions necessary to protect the environment and preserve ecological balance within their territorial limits, except in matters reserved to the federal or state governments.

To add to this, the state has promulgated six regulations with detailed provisions which aim to ensure that the law is applied in an appropriate and specific manner in the areas of: water, air and soil pollution, environmental impact assessment, the State Environmental Council, the state's *Gaceta Ecológica (Ecological Gazette)*, authorization and registration of private environmental experts and consultants, and accreditation of environmental laboratories (Environmental Law Institute 1996, 42). Additionally Baja

⁷⁹ Law of Ecological Balance and Environmental Protection of the State of Baja California, Article 3.

⁸⁰ Law of Ecological Balance and Environmental Protection of the State of Baja California, Article 2, §XIX.

California has laws that relate to environmental protection in a more indirect way. These include the *Ley de Desarrollo Urbano del Estado de Baja California* (State Law of Urban Development), which establishes responsibilities for the state and local governments, and promotes the conservation and improvement of the environment within urban areas⁸¹; *Ley de Fomento Agropecuario y Forestal del Estado de Baja California* (State Law of the Development of Agriculture, Livestock and Forestry) and the *Ley de Protección a los Animales para el Estado de Baja California* (State Law for the Protection of Animals). A final state law that affects environmental policy within the state of Baja California is the *Ley Orgánica de la Administración Pública Municipio del Estado de Baja California* (State Organic Law of the Municipal Public Administration). This law delineates the basic framework for municipal governance, providing for municipal jurisdiction over the provision of public services such as trash collection. It also establishes municipal responsibility for monitoring compliance with the Federal Ecology Law and establishes procedures to implement norms pertaining to pollution levels.⁸²

Overall, Baja California's environmental legislation does outline decentralization for both the state and *municipio* levels. For example, the environmental legislation states that governmental decisions must take into account the specific needs of different ecological regions of the state—thus needing to involve not only state but also local agents. The legislation also mandates that state and *municipio* agencies work together—the state must first complete environmental impact authorization, then the *municipio* grants land use and subdivision licenses and if an inspection by one government level

⁸¹ State Law of Urban Development, Articles 3,7.

⁸² State Organic Law of the Municipal Public Administration, Article 43. This law was amended in 2001 with the federal and state government's acceptance to changes in federal Article 115.

reveals a problem under another level's jurisdiction, the appropriate officials are notified. Finally, the legislation gives the state and *municipio* governments' independent authority over a number of enforcement tools such as facility closure.

The last type of environmental legislation found in Baja California is decentralization framework agreements signed with the federal agency SEMARNAT. These framework agreements establish the basis for further specific agreements to transfer SEMARNAT-led functions for environmental management to the states and *municipios*. Baja California can claim twenty-two of the 163 decentralization agreements signed with Mexico's six northern border states from 1995 through 1999 (EPA 2001, 16). This is 14 percent of the total agreements, less than one-sixth, showing that Baja California has not been as engaged in this form of decentralization as have some of the other border states.

Municipal Environmental Legislation

All five of Baja California's municipalities have adopted their own environmental protection or ecology ordinance (*reglamento*). In addition to this, the *municipios* are also involved in a process to review and update their *reglamentos*.

Table 6.1: Municipal Ecology Ordinances within the State of Baja California

| <i>Municipio</i> | <i>Date Reglamento Adopted</i> |
|--------------------|--------------------------------|
| Ensenada | 1999; 2000 |
| Mexicali | 1997 |
| Tecate | 1992 |
| Tijuana | 1991; 2001 |
| Playas de Rosarito | 1999 |

Table 6.1 reports the year in which each of the *municipios* adopted environmental *reglamentos*. This data shows us the existence of formal frameworks of capacity building for decentralization for the *municipios*.

A brief summary of these *reglamentos* reveals considerable similarity yet some variation in the respective approaches to environmental protection at the *municipio* level.

1. Ensenada

The municipality of Ensenada adopted the *Reglamento para el Control de Calidad Ambiental del Municipio de Ensenada, Baja California* in 1999 and the *Reglamento Interno para el Funcionamiento de la Comisión Municipal para la Preservación del Ambiente* in 2000. These *reglamentos* name a *Comisión Municipal para la Preservación del Ambiente* (Ecology Commission) to deal with environmental issues within the competency of the *municipio*. Membership within the Ecology Commission is honorary and members come from governmental, academic, social and business sectors. One of the objectives of this *reglamento* and for the Ecology Commission is to promote public participation and representation for environmental decisions and actions taken by the *Dirección de Desarrollo Urbano y Ecología* (Department of Urban Development and Ecology) and/or the *Dependencia Municipal del Ecología* (Municipal Ecology Office). However, the *reglamentos* describe the Ecology Commission's main functions as knowing and understanding the necessities and capacity of the community in relation to environmental matters and to propose alternative solutions; helping improve the quality of life, as it relates to environmental concerns, for those living within the municipality; and revising and analyzing environmental programs, plans and projects presented by and before the municipal authorities.

Ensenada's *reglamentos* also outline how the members of the Ecology Committee will be chosen, the structure, functions, schedule and obligations of the Ecology Commission, the process of presenting proposals to the city council, and the general procedure for the Ecology Commission to access funds.

2. Mexicali

The city council for the municipality of Mexicali adopted the *Reglamento de Protección al Ambiente para el Municipio de Mexicali, Baja California* in 1997. Mexicali's *reglamento* clearly follows the state environmental law. It sets forth a municipal Commission of Ecology and defines the responsibilities of the Municipal Ecology Office concerning environmental politics, environmental evaluations, preventing and controlling the pollution of water, air and land, preserving and improving the environment, and promoting public participation and education for environmental decision-making. Finally, Mexicali's *reglamento* discusses inspectors, audits and inspections for environmental concerns and penalties for infractions.

3. Tecate

The *Reglamento de Aseo Público y Protección al Ambiente para el Municipio de Tecate* was adopted in early 1992 and was modified in 1994. This *reglamento* was one of Baja California's first pieces of municipal environmental legislation and thus differs from those written later because it assigns responsibility to SEDUE and the city council instead of a Municipal Ecology Office. This *reglamento* also differs from others because it combines a variety of regulations, those concerning public services such as trash collection with those

discussing conservation and protection of the environment. Regulations concerning industrial and household waste disposal are laid out, obligations of citizens are outlined, development and preservation of green areas is delineated, and regulations concerning inspections and penalties for infractions are described.

4. Tijuana

The *Reglamento de Limpia para el Municipio de Tijuana, Baja California* was adopted in November 1991. This *reglamento* was adopted prior to the 1992 Law of Ecological Balance and Environmental Protection of the State of Baja California, thus it is not as complete as those adopted after 1992. Because it did not include all of the elements of the 1992 State Law, in 2000 and 2001 the municipality of Tijuana rewrote its environmental *reglamento*. In May 2001 Tijuana adopted the *Reglamento Municipal Para la Protección al Medio Ambiente*.

Tijuana's *reglamento* grants responsibility for environmental protection to the Presidente Municipal and the Dirección Municipal de Ecología. Additionally it created a Consejo Municipio de Ecología to work as a consultative organ that coordinates the municipal government and society with Consejo members from local government offices and citizens. The *reglamento* also explains the responsibilities of the municipality and those of the citizens in addition to the procedures for inspections and the penalties for infractions.

5. Playas de Rosarito

The *municipio* of Playas de Rosarito adopted their *Reglamento de Protección al Ambiente para el Municipio de Playas de Rosarito, B.C.* on

February 26, 1999. This *reglamento* closely follows Baja California's state ecological law. Similar to other municipal ecology *reglamentos* in Baja California, responsibility for the application of the *reglamento* falls to the Presidente Municipio, through the Dirección de Planeación Urbana y Ecología (Department of Urban Planning and Ecology). It sets up a Department of Ecology and outlines the responsibilities of the Department of Ecology, including developing and managing municipal environmental policies, helping with environmental impact evaluations, working to prevent and control water, air, land and noise pollution, promoting the preservation and improvement of the environment and encouraging public participation with and citizen education about environmental issues. Finally, Playas de Rosarito's *reglamento* discusses inspectors, audits and inspections for environmental concerns and penalties for infractions, again relying heavily on the state Ecology Law.

Overall, the *municipio reglamentos* are fairly similar in their concerns and language. With the exception of Tecate's *reglamento*, which is different, all of the *municipios* address the issues of preservation and restoration of ecological balance, prevention and control of air, water, and land pollution, public participation and decision-making, environmental concerns for improving quality of life for citizens, and penalties for infractions. These similarities are likely the result of the fact that (again with the exception of Tecate's *reglamento*) Baja California's municipal environmental legislation was written after 1992 and closely follows the state's environmental law. That said, the *reglamentos* do differ slightly from the state's environmental law in that they do not focus on coordination of agencies or the distribution of jurisdictions for environmental

protection. Furthermore, legislation at the *municipio* level does not contain separate detailed regulations, as does the state's, for checks on issues such as accreditation of environmental experts.

State Water Legislation

In the last few years the federal CNA has made considerable efforts to decentralize the responsibility for management of water resources. In reaction to this a number of states have enacted new or modified old water and sanitation laws; however, Baja California was not one of these states. Instead Baja California retained their water and sewage laws: *Ley que Reglamenta el Servicio de Agua Potable en el Estado de Baja California*, adopted in 1969, and *Ley de las Comisiones Estatales de Servicios Públicos del Estado*, adopted in 1979. However, Baja California did write an annex to the formal structure for providing water and sanitation allowing for some funding to be transferred from CNA to *la Secretaria de Asentamientos Humanos y Obras Publicas* (SAHOPE) (State of Baja California Norte Authority for Public Works). This transfer of authority and funding applies to the provision of water and sewerage in the rural regions (CNA and SAHOPE 1998). Overall, water and sewage administration in Baja California still relies heavily on the CNA. However, the CNA's suggestions for decentralization were not incorporated into Baja California's existing legislation.

Municipal Water Legislation

The state government and its local commissions control Baja California's water supply and sewage. Because of this, at this time the *municipios* do not have incentive, and thus have not composed local level water legislation. Water concerns are addressed

in *municipio* legislation as far as they are connected to environmental concerns, but as an independent policy, *municipio* water legislation does not exist.

Discussion

Mexico's constitution and federal environmental and water legislation formally grant state and *municipio* governments the authority to write legislation, as long as it does not impede federal regulations. This authority has been taken up by Baja California, particularly in the area of environmental policy legislation, although also to a lesser degree with water policy legislation.

Environmental Legislation

The summaries of the legal framework for environmental protection show that Baja California has been fairly quick to react to federal mandates to create state level environmental legislation. Additionally, the state government has taken time and resources to produce a document formally sanctioning broad environmental authority to the state, although the distinction concerning which level of government is responsible for what is not always clearly delineated, thus setting the stage for confusion. Baja California's state legislation provides the basis for the state to play an active role in environmental matters falling under their jurisdiction. Thus, to the extent that federal law leaves room for interpretation and discretion with respect to the limits of state jurisdiction, those limits may be tested in Baja California (Environmental Law Institute 1996: 46). Therefore, not only does the legislation create an enabling environment for capacity building for decentralization, but it also opens the door for pushing the edge on how much decentralization is allowed.

It is also important to note that every *municipio* within the state of Baja California has a municipal environmental *reglamento*. True, many of them closely follow the state Ecology law but this does not lessen the fact that each *municipio* has taken the initiative to put together an environmental *reglamento*. Each of the *municipios* has legal rights to affect and to some degree administer environmental matters within their geographical jurisdiction. This shows creation of an important aspect of the capacity for decentralization—legal precedence and the development of an enabling environment in Baja California and each of the state’s *municipios*. It also reveals increasing capacity for decentralization at both state and *municipio* levels. The formal frameworks set the stage for sub-national governments to move into not only administration of environmental and water policies, but also decision-making within their jurisdiction. Thus the formal frameworks can further the process of decentralization, possibly achieving delegation.

That said, despite the expansion of the formal system for environmental protection and the creation of an enabling environment for decentralization of environmental policies, the powers of state and local governments remain limited, formally. State and local governments are not permitted to adopt or pass more stringent regulations or technical norms than those adopted by the federal government. Additionally, if the lower levels of government do not have the resources to develop formal regulations, control falls to the federal agencies, creating a situation where the default promotes centralization. Furthermore, ambiguity of responsibilities within Baja California’s environmental legislation has forced the governments to not rely on the formal framework, but instead to address jurisdictional issues on a case-by-case basis. The agencies consult one another to clarify which agency is responsible for enforcement

for individual industrial facilities. This, although not directly affecting decentralization, lessens the authority of legislation, which weakens the enforcing environment and ultimately cedes decision-making authority to the federal agencies that clarify the ambiguity. Clearly the federal government has not given up large amounts of decision-making power. The federal government has created a situation where decentralization is possible, yet where the federal agencies still have influence.

Water Legislation

In Baja California, the water legislation situation is different than that of environmental legislation. Although there is some over-lap with water provision included as an environmental value within environmental legislation, water resource provision is also a distinct policy category. Water is considered a basic need. This distinction is reflected in the state's formal legislation.

Within Baja California, there have been only limited changes made to the official documents describing water and sewerage administration. As noted, Baja California has not enacted new state water or sanitation laws, despite the federal program to decentralize. Rather than extensive restructuring for decentralization, the state has modified small portions within the existing legislation. Explanations for this vary yet mainly focus on the necessity of water. Water is a basic necessity, thus it is important to have some assurance of potable water delivery and sewerage disposal. By failing to rework the legislation, Baja California state government can relieve itself of some of the accountability, and maintain some of the federal government's responsibility. Furthermore, because the state and the state's Commissions for Public Services administer water and sewerage throughout the state, the *municipios* have no incentive to

write their own water legislation. Overall it can be said that water legislation in Baja California suggests there is some deconcentration and delegation—the CNA has granted some decision-making authority to the regional CNA agencies and allowed some administrative functions to be given to the state, although the state does not appear to be overly eager to have water services responsibilities. However, at the local level, the process of decentralization has not moved beyond deconcentration.

Environmental and Water Legislation: Formal Frameworks

The formal framework for Baja California's environmental and water policies suggest two things: some changes have occurred since the passage of new federal environmental policies—substantial changes for Baja California's environmental legislation, more limited changes for water legislation. And, second, that there is a distinction between the evolution of decentralization in environmental and water legislation. State water legislation reveals deconcentration and /or delegation while environmental legislation reveals devolution at the state level and delegation or devolution at the local level. This variance can be considered in part due to the unique status of water as a human necessity in comparison to environmental issues and protection, which are seen as having less of an immediate and extensive affect on citizens' lives.

This said, the formal framework only tells one part of the story. To more completely understand decentralization within these two policy areas it is necessary to also look at the organizational component of these policies. To begin with, a discussion of the state and *municipio* government access to resources including fiscal resources will

expose another part of the story, shedding light on Baja California's state and local governments' capacity and competency concerning environmental and water policies.

Baja California's Environmental and Water Policies: Resource Development and Institutional Development

Moving beyond the formal legislation and enabling environment for environmental and water decentralization, this section looks at Baja California's state and *municipios* human and institutional capacity for environmental and water decentralization. By looking at the agencies responsible for implementation of decentralization and the fiscal resources these agencies have to work with at the state and *municipio* levels, it is possible to draw a picture of the assets and constraints of human and institutional capacity for decentralization.

Environmental Agencies and Resources

State Agencies Responsible for Environmental Policies

Within Baja California, the agency responsible for administering the Law of Ecological Balance and Environmental Protection is the *Dirección General de Ecología del Estado Baja California Norte* (General Office of Ecology of the State of Baja California, DGE). This agency has legal authority for all matters relating to environmental protection and preservation that fall within state jurisdiction. It is also charged with coordinating the actions of various state agencies working for environmental protection and with promoting education and public participation.⁸³ The

⁸³ These responsibilities are granted to the Ecology Office by Articles 7, 18 and 23 of the Law of Ecological Balance and Environmental Protection of the State of Baja California in addition to Article 17 §28 of the Organic Law of the State Public Administration.

Office of Ecology was created in 1992, following the enactment of the Law of Ecological Balance and Environmental Protection of the State of Baja California. It is based in Tijuana with smaller delegations in Ensenada and Mexicali. Within the agency are two sub-offices: Regulation, Control and Environmental Protection, which is responsible for administrative appeals and inspections, and Standards, and Analysis and Environmental Management, which issues authorizations and develops the state ecological plans. The Office of Ecology answers directly to the Governor. It receives its funding from the state, although it does have authority to charge fees and collect fines for violations of state law. However, fees and payments collected go to the state and are considered only indirectly when determining the agency's budget for the following year (Environmental Law Institute 1996). The agency does have access to some equipment such as computers and vehicles and the staffing is adequate for what they need to achieve (Lara 2001).

A second agency that deals with Baja California's environmental issues is the State Ecology Council. The Law of Ecological Balance and Environmental Protection of the State of Baja California established this council, which is intended to provide an institutional link between the government and public through its supervision of the programs of the Office of Ecology. It also coordinates the actions of state and municipal authorities.⁸⁴ The Council has citizen representatives and its meetings are open to the public. It is designed to work as a check for the Office of Ecology. The Council is not as well supported as is the Office of Ecology, and thus cannot rely on access to the same types of resources.

⁸⁴ Article 10 of the Law of Ecological Balance and Environmental Protection of the State of Baja California discusses the State Ecology Council.

Other state agencies that have responsibilities indirectly related to environmental protection include the Comité de Planeación del Desarrollo del Estado (COPLADE) that has a Special Subcommittee on Ecology. Additionally, the *Secretaría de Asentamientos Humanos y Obras Públicas* (SAHOPE) is also soon to be involved in environmental issues.⁸⁵ Overall these state agencies have a fair number of technological (institutional) and human resources, however appointments of senior officials and middle managers are often determined more by political interests than by the candidates' science or engineering skills, hindering environmental protection, affecting management of environmental agencies, and slowing the process of decentralization (Montalvo Corral 2000).

State Budget for Environmental Agencies

It is essential to look at the structure and administration of public finances in order to assess the extent and effectiveness of decentralization. Legislation and agencies may make decentralization possible, but the programs gain political relevance only when the transfer of responsibility is accompanied by resources, particularly fiscal resources, that enable a government to act upon its responsibilities and thus to exercise power.

Examination of the budgetary commitments of Baja California provides evidence concerning involvement in environmental policy and resources available for environmental and water policies.

⁸⁵ Currently SAHOPE deals with water management, but their agenda is soon to also include the creating of some overarching environmental norms (Brown 1999, 17).

Table 6.2: Baja California's Ecology Budget for 2000

| | Total Budget | Ecology Agency Budget | Ecology Budget as % of Total Budget |
|------------------------|---------------------|------------------------------|--|
| Baja California | \$10,546,188,650.88 | \$13,704,236.13 | 0.13% |
| Line Items: | | | |
| Dirección de Ecología | | \$ 7,316,711.44 | |
| Delegación Mexicali | | \$ 4,611,245.98 | |
| Delegación Ensenada | | \$ 1,776,278.71 | |

Source: Estado de Baja California 1999a.

Table 6.2 reveals that the state of Baja California gives less than one percent of its total budget to the Ecology Agency, with a substantial amount of this going to the Mexicali delegation. Funding is clearly limited, however according to Adolfo Gonzalez (2000) who works for the Ecology Agency, the Ecology Agency and its dedicated employees accomplish a reasonable amount of environmental protection due to implementing efficient management. Thus, although more fiscal resources would clearly provide for greater protection, and build a foundation for greater decentralization, there are other resources, such as personnel, that can take limited funds and utilize them efficiently and effectively, strengthening capacity for decentralized management.

Municipal Environmental Agencies

Municipios have fewer resources with which to increase the capacity for decentralization than does state government. According to the Law of Ecological Balance and Environmental Protection of the State of Baja California⁸⁶, each *municipio* is required to establish an administrative agency for ecology. These agencies are to have responsibility for applying the aspects of environmental protection that fall within the jurisdiction of the *municipio*. The environmental *reglamentos* of Ensenada, Mexicali, and Playas de Rosarito establish these agencies.

⁸⁶ Article 9 discusses the *municipios'* agencies for ecology.

Table 6.3: Administrative Structure for Baja California's *Municipios*

| <i>Municipio</i> | Administrative Agency for Ecology | Level of Ecology Agency |
|--------------------|--|--------------------------------|
| Ensenada | Oficina del Director de Desarrollo Urbano y Ecología and the Departamento de Ecología | <i>Subdirección</i> |
| Mexicali | Dirección de Catastro, Control Urbano y Ecología and the Departamento de Planeación y Ecología | <i>Subdirección</i> |
| Tecate | Dirección de Catastro, Control Urbano y Ecología | Developing <i>Subdirección</i> |
| Tijuana | Dirección de Planeación del Desarrollo y Ecología | Developing <i>Subdirección</i> |
| Playas de Rosarito | Planeación Urbana y Ecología along with their Departamento de Ecología | <i>Subdirección</i> |

Sources: Estado de Baja California (1999b, 2000a, 2000b, 2000c, 2000d)

As Table 6.3 shows, in Ensenada, administration of environmental matters falls under the Oficina del Director de Desarrollo Urbano y Ecología and the Departamento de Ecología. For Mexicali, the Dirección de Catastro, Control Urbano y Ecología and the Departamento de Planeación y Ecología administer environmental matters; and Playas de Rosarito utilizes Planeación Urbana y Ecología along with their Departamento de Ecología. The Departamentos de Ecología in each of these *municipios* have access to technology in the form of computers and along with this have access to a substantial amount of information (R. Martinez 2001). Not only have these *municipios* and their Departamentos de Ecología put a substantial amount of state and local information on the World Wide Web, but they also have access to information done by researchers and government employees from the U.S. (R. Martinez 2001). Finally these agencies also have adequate numbers of personnel (see Table 6.4).

The other two *municipios*, Tecate and Tijuana are currently utilizing general agencies to cover issues relating to environmental protection while they move towards development of their agency of ecology or ecology department. In Tecate, administration of environmental matters falls under the Dirección de Catastro, Control Urbano y

Ecología. In Tijuana the Dirección de Planeación del Desarrollo y Ecología addresses ecological concerns through its land use planning and permitting activities and the COPLADEM (*municipio* equivalent of the state's COPLADE) plays a role in the development of municipal environmental proposals and activities. Like the other *municipios*, Tecate and Tijuana also have computers, adequate personnel, and access to a substantial amount of information (see Table 6.4).

Table 6.4: Human and Technological Resources in Baja California's *Municipios*' Ecology Agencies

| <i>Municipio</i> | Number of Personnel | Technological Resources |
|--------------------|---------------------|---|
| Ensenada | 6 | Good: computers |
| Mexicali | 5 | Good: computers and some other technology |
| Tecate | 4 | Good: computers |
| Tijuana | 7 | Good: computers and other technology |
| Playas de Rosarito | 3 | Good: access to computers |

Sources: Lara (2001), R. Martinez (2001), Ruben Lara (2001).

Increasingly all of Baja California's *municipios* are showing signs of moving from top-down fragmented management of environmental issues, to a more bottom-up, local approach that encourages community-based management (Michel 2001). However in order to ensure continued existence and effectiveness of the environmental agencies it is also necessary for the *municipios* to have sufficient budgets with which to run these agencies and departments.

Municipal Budgets and Resources for Environmental Agencies

Under Baja California's governor Ruffo (1989-1995), the transfer of property assessment from the state to the *municipio* level, first in Mexicali and then in the other *municipios*, gave the local governments an important sources of revenue, as well as the authority to manage this self-generated income. In addition to this, the federal

government has an agreement with the state whereby all fines imposed by PROFEPA are paid directly to the *municipio* in which the fine was imposed. This was set up in order to strengthen *municipio* environmental protection efforts (Environmental Law Institute 1996). These steps are important because they have allowed the *municipios* to realize a dramatic increase in self-generated revenues and a greater amount of control over how revenues are spent. This has thus given the *municipios* in Baja California greater opportunity to plan expenditures more efficiently and for the longer term. To some degree this institutionalizes the capacity for planning and enables the *municipios* to respond better to the demands of governance (Rodriguez and Ward 1994:112-113).

Table 6.5: Baja California *Municipios*' 2000 Budgets and Ecological Agency Budgets

| Municipio | Total Budget | Ecological Agency Budget | As % of Total Budget |
|--------------------|---------------------|---------------------------------|-----------------------------|
| Ensenada | \$ 301,877,406.00 | \$12,766,636.20 | 4.23% |
| Mexicali | \$ 761,486,359.00 | \$14,796,629.43 | 1.94% |
| Tecate | \$ 125,016,449.96 | \$ 4,017,696.00 | 3.21% |
| Tijuana | \$1,249,436,000.00 | \$37,914,800.00 | 3.04% |
| Playas de Rosarito | \$ 66,523,892.05 | \$15,307,826.05 | 23.01% |

Sources: Estado de Baja California 1999b, 2000a, 2000b, 2000c, 2000d.

Table 6.5 shows the total budget and ecology agency budget within each of Baja California's *municipios*. These numbers come from the expenditure of the general agencies that house ecological administration in the *municipios* and extrapolation from these figures. It must be kept in mind that the functions of the municipal agencies that house the ecological administrations vary and that overall budgetary bases for the *municipios* also vary, contributing to disparities in allocations among the agencies. Line item entries within the budget reveal, in more detail, the amount of money that is spent on environmental protection and issues.

Table 6.6: Ecology Budgets for Baja California's *Municipios*

| Municipality | Total Ecology Budget | Line Items | |
|---------------------------|----------------------|--|-----------------|
| Ensenada | \$12,766,636.20 | Oficina del Director de Desarrollo Urbano y Ecología | \$11,841,777.16 |
| | | Control Urbano | \$ 220,454.64 |
| | | Departamento de Catastro | \$ 309,742.72 |
| | | Departamento de Planeación | \$ 216,782.72 |
| | | Departamento de Ecología | \$ 177,878.96 |
| Mexicali | \$14,796,629.00 | Oficina del Titular | \$ 1,691,572.00 |
| | | Control Urbano | \$ 4,675,081.00 |
| | | Catastro | \$ 6,275,723.00 |
| | | Planeación y Ecología | \$ 1,006,370.00 |
| | | Ingeniería de Transito | \$ 560,392.00 |
| | | Proyectos de Equipamiento | \$ 587,490.00 |
| Tecate | \$4,017,696.00 | Dirección de Catastro, Control Urbano y Ecología | \$4,017,696.00 |
| Tijuana | | | |
| Playas de Rosarito | \$15,307,826.05 | Planeación Urbana y Ecología | \$ 1,611,004.00 |
| | | Control Urbano | \$ 1,131,960.85 |
| | | Catastro | \$ 2,324,431.09 |
| | | Ecología | \$ 202,112.00 |
| | | Obras y Servicios Públicos | \$ 4,424,325.44 |
| | | Limpia | \$ 1,451,915.84 |
| | | Talleres | \$ 574,203.87 |
| | | Alumbrado Público | \$ 2,736,686.72 |
| | | Parques y Jardines | \$ 851,186.24 |

Sources: Estado de Baja California 1999b, 2000a, 2000b, 2000c, 2000d.

Table 6.6 shows the line item entries for Baja California's *municipios*. The first obvious feature of this table is that there are no numbers listed for Tijuana. At the time of the 2000 budget, the municipality of Tijuana did not have a revised Ecology *Reglamento* and the 1991 *reglamento* had not created a Department of Ecology that was listed as a separate line item within the municipality's budget. This is different from Tecate, which also did not have a new *reglamento* but did have a separate line item agency listed in its budget. Thus, of all the municipal budgets in Baja California, Tijuana's is the least clear, mixing environmental expenditures within a number of departments, combining various

disparate expenditures. An analysis of Tijuana's budget, as listed in Table 6.5, requires substantial extrapolating from the figures and includes categories such as Planeación Urbana, Catastro and Control Urbano.⁸⁷

Overall Table 6.6 reveals budgets showing a variety of ecology/environmental categories. Funds slated for environmental protection and/or conservation are composed of a variety of expenditures, there is no uniform set of expenditures that make up the ecology budget for Baja California's *municipios*. Nevertheless, there are two general commonalities exposed in these budgets. First, none of these *municipios* have listings in their budgets for water and sewage service—water and sewage services are administered through state agencies and offices. Second, it is also worthy of note that with the exception of Playas de Rosarito⁸⁸, the municipal agencies do not include public works as a line in the ecology agency's budget. This could explain the large percentage of the budget that goes to this agency for Playas de Rosarito since this is a major draw on the agencies' resources, and the principal priority for expenditures. Even with this explanation and consequential reduction in the budget for environmental matters, it is clear that the *municipios* within Baja California have budgets that allow work toward environmental protection; they have fiscal resources with which to increase administrative levels of decentralization. These budgets are administered by the *municipios* and their agencies, revealing institutional capacity for decentralization within these *municipios*.

⁸⁷ The line items I chose to look at roughly correlated with those listed in the line-item categories of the other municipalities, and did not include public works.

⁸⁸ Playas de Rosarito's budget shows \$202,112 pesos to be spent on ecology. Although there are other line-item categories that can be considered to include "environmental protection," the money specifically slated for ecology is 1.3 percent. The majority of the agency's budget goes to public works.

Water

State Agencies Responsible for Water Policy

Within the state of Baja California, there are a number of agencies responsible for water concerns. Included in these are the *Comisión Estatal del Agua* (CEA) (State Water Commission), the *Comisión de Servicios de Agua del Estado* (COSAE) (State Water Services Commission), and the *Comisiones Estatales de Servicios Públicos* (CESPs) (State Commissions of Public Services).

The CEA was created in 1999 to coordinate activities directly related to water services and sewerage. This state agency has offices in Tijuana and Mexicali, and works with SAHOPE. The second state agency, COSAE administers, operates, and maintains the inter-*municipio* aqueducts in Baja California. It also works with the state's water treatment plants. Finally, the CESPs⁸⁹ are state agencies located in Baja California's *municipios*.

Table 6.7: Baja California's *Municipios*' Water Supply Agencies

| <i>Municipio</i> | Water Supply Agency | Level of Government in Charge of Water Agency |
|--------------------|--|---|
| Ensenada | Comisión Estatal de Servicios Públicos de Ensenada | State |
| Mexicali | Comisión Estatal de Servicios Públicos de Mexicali | State |
| Tecate | Comisión Estatal de Servicios Públicos de Tecate | State |
| Tijuana | Comisión Estatal de Servicios Públicos de Tijuana | State |
| Playas de Rosarito | Comisión Estatal de Servicios Públicos de Tijuana | State |

⁸⁹ In the mid-1970s the *Ley de las Comisiones Estatales de Servicios Públicos del Estado de Baja California* granted primary responsibility for the provision of water and sewerage systems and construction and operation of hydrologic infrastructure in Tijuana and Rosarito to the CESPT (CESPTijuana 1996). With time, growth, and movements to further decentralize, the state has developed CESPs in Tecate, Ensenada and Mexicali.

Table 6.7 shows that the state of Baja California vests responsibility for water management in the CESP; thus it is the state agencies that are in charge, despite their locations within the *municipios*. These CESP are currently responsible for water project planning and construction, however they are limited as to the amount of decision-making responsibilities they are given. Furthermore, as with the state environmental agencies, despite the state level water agencies' adequate institutional and human resources, including computers, vehicles, and an acceptable numbers of personnel (Guzman 2002), the CESP's decision-making is said to be hampered by strong interests that push to follow traditional water management procedures (Pineda-Pablos 2001). This hinders the decentralization process, holding back progress for the water agencies to move from deconcentration to delegation. Thus, examination of state water agencies' structures reveal some capacity for furthering the process of decentralization; however, without true decision-making powers, devolution and maybe even delegation will be all but impossible.

State Budget for Water Policies and Agencies

In addition to limitations on decision-making, Baja California's water agencies also face a budget that is somewhat limited. Although there are acceptable amounts of resources to maintain adequate institutional and human resources, the budgets are far from excessive. Additionally, within Baja California, the actual amount of money that is allocated to water policies is questionable. This is due to the fact that there are no line items for water policy with the state's budget. Instead, water policies are lumped into the public works section of the budget, necessitating extrapolating from those numbers to get a feel for the water agencies financial situations.

Table 6.8: Baja California and Baja California's Public Works Budgets for 2000 (in pesos)

| | Total Budget | Public Works Budget | Public Works Budget as % of Total Budget |
|------------------------|---------------------|----------------------------|---|
| Baja California | \$10,546,188,650.88 | \$173,934,459.78 | 1.65% |
| Line Items: | | | |
| SAHOPE | | \$11,446,090.41 | |
| Delegación Tijuana | | \$5,598,695.42 | |
| Delegación Ensenada | | \$3,274,347.36 | |
| Delegación Tecate | | \$2,657,937.53 | |

Source: Estado de Baja California 1999a.

As Table 6.8 shows, Baja California's public works budget is 1.65 percent of Baja California's total budget. This is substantially more money than is put aside for environmental concerns, yet clearly still not one of the state's greatest expenses.

Furthermore, the SAHOPE budget is a mere .07 percent of the public works budget, with the *municipio* delegations receiving even less than SAHOPE. SAHOPE and delegations' budgets encompass more than water policy issues, so the actual number for water policy is even smaller than these reported budgetary figures. Clearly this does not represent substantial fiscal resources dedicated to water concerns and thus limits the amount of decentralization that can occur for water policies.

Municipal Water Agencies

As previously noted, water agencies within the state of Baja California are managed by the state. Because of this, *municipios* play a minimal role with water provision within the state. The state-run CESP's are located within the *municipios* thus giving locals a bit more access to those who manage the water resources, but the state is still the administrator and manager for water services in Baja California. Clearly because this is the case, Baja California's *municipio* governments have not budgeted resources for use with water agencies.

Discussion

Environmental Agencies

The establishment of state and *municipio* environmental agencies increases institutional resources for governments, thus furthering capacity for decentralization. The mere existence of environmental agencies shows that there has been effort put forth at the federal, state and/or *municipio* level, presumably with the idea that these agencies will perform a function, i.e., they will take some responsibility from centralized agencies. This said, it is important to note that such formal changes are necessary but not sufficient for advancing decentralization. In other words, the mere establishment of agencies should support decentralization, but in fact may be done simply for appearance.

The state of Baja California does not receive more fiscal resources for environmental functions than do other Mexican states, yet Baja California's personnel assert that they can work with the resources they have. This assertion suggests two things: first, although the sums contributed are not large, there is money dedicated to environmental agencies allowing advancement of decentralization to occur. Second, the personnel, the human resources at the state level, are dedicated professionals who work with what they are given and strive to build a foundation from which decentralization can proceed. This human resource capacity and efficient use of resources is important for making the most of the decentralized responsibilities that exist, and it can be a strong force to push for greater decentralization in the future.

At the local level, the fact that sixty percent of Baja California's *municipios* have ecology departments and the others are working toward developing ecology departments shows new capacity building for decentralization. In addition, although ecology and

environmental concerns do not receive large percentages of the budget, they are listed within the budget. Since many *municipios* outside of Baja California fail to list general line items for ecology, the fact that the state's *municipios* do this may be taken as evidence of the greater attention and value ceded to this function in Baja California. Additionally, line item listing within the budget shows financial responsibilities at sub-national levels implying delegation. And all of Baja California's *municipios* have access to a fair amount of technology and information, showing a substantial level of institutional development capacity building. Taken as evidence of decentralization, these indicators point to statewide progress in establishing the vital administrative mechanisms for environmental protection that are essential if Baja California is to make further advances in this area. Even so it is important to note that some areas of environmental improvement remain largely under federal or state control.

Water Agencies

Looking at water agencies it is possible to see some capacity for decentralization. Water agencies are developed within the state, with each *municipio* housing a branch of the water agency. Furthermore, although hard to find within Baja California's budget, it is understood that the federal government pays for half of the water provision costs and provides technical assistance, freeing up the state from additional costs. This practice does minimize the fiscal resources the state needs to produce, but it also maintains the federal connection to Baja California's water policies, and thus limits the process of decentralization. Overall these characteristics reveal delegation from the federal to the state level of government in Baja California. However, these characteristics also suggest there has been little movement in the process of decentralization to the local level—there

has not been much more than a geographical movement of federal and state agencies into a greater number of *municipios*, showing minimal deconcentration.

This discussion of Baja California's environmental and water legislation, agencies, and resources highlights how there are still many constraints for greater decentralization within the state and its *municipios*. This is true, yet is it also important to realize how far the state and local governments have come, and what constraints have been removed from the process of decentralization. The next part of this chapter will explore other facts that influence Baja California's general process of environmental and water decentralization.

Baja California's Environmental and Water Policies: Other Influences on Implementation

In addition to the legislation, agencies, resources and budgets, there are also other factors that can affect decentralization of environmental and water policies within states and *municipios*. As discussed in chapter 3, two factors to consider are the strength of opposition parties and the level of public participation within the state and its *municipios*.

Political Parties

The political party in power can affect a state and/or *municipio*'s capacity to decentralize. Baja California's political history makes this an interesting factor to explore while looking at decentralization. At the state level, Baja California was the first Mexican state to secure an opposition party governor, Ernesto Ruffo Appel from the PAN. Also all of the *municipios* have elected municipal presidents (mayors) from the PAN.

Table 6.9a: Political Parties in Power in Baja California

| | 1989 | 1995 |
|---------------------------------------|------------|------------|
| Baja California (governor) | PAN | PAN |

Table 6.9b: Political Parties in Power in Baja California

| Municipality | 1989 | 1992 | 1995 | 1998 |
|---------------------------------------|------------------|-------------|-------------|-------------|
| Ensenada (municipal presidency) | PAN | PAN | PRI | PRI |
| Mexicali | PRI | PRI | PAN | PAN |
| Tecate | PRI ^a | PAN | PRI | PRI |
| Tijuana | PAN | PAN | PAN | PAN |
| Playas de Rosarito | b | b | c | PAN |

^aPRI won only 32 votes more than did PAN in this municipal election.

^bPlayas de Rosarito was not created as a *municipio* until 1995

^cUnder control of municipal council

Tables 6.9a and 6.9b reveal influence from the PAN party within Baja California beginning in 1989 when the opposition PAN party won the governor's seat. This shows increasing levels of political competition, replacement of the older, more entrenched, less responsive senior officials in decision-making positions (Ganster 2001), and an expansion of power to people in an opposition party. What the table does not show is that when these changes began to occur in Baja California, the PRI surmised that it was important to improve its image (they were losing seats). The PRI supporting decentralization and granting administrative duties to state and local level representatives would improve citizens' perceptions of their party.

José Luis Moreno (2000) emphasized the importance of these changes—of having opposition governments in power. Moreno suggests that the difference between PAN and PRI control in states is an important factor influencing progress on decentralization among the border states. Moreno noted that the change in the governor's office of Baja

California has opened the door for new ways of thinking and more inter-governmental environmental legislation supporting the process of decentralization.

When the PAN began gaining positions at the state and local levels, there was a shift away from partisanship. Although not absent, when PAN took control, many officials made it a point that they worked for the government and not for a particular party. Thus where people were once hired for party loyalty, the focus changed to administrative competence, which translated into more reliable and efficient service provision (Rodriguez and Ward 1994; Moreno 2000; Pineda-Pablos 2000). Particularly at the *municipio* level, the new PAN administrations began to center more upon two types of relationships with civic society: insuring that citizens are properly informed and following established procedures rather than expecting to engage in clientelistic pressure politics, and promotion of relationships with individual citizens rather than relationships through leaders or corporatist affiliated organizations. These steps furthered public participation by the formation of more links between government and public through a new civic network (Rodriguez and Ward 1994; Moreno 2000).

One example of the changes occurring under opposition party control is the rewriting of Tijuana's environmental *reglamento*. The *municipio* is working to make the procedure more transparent, even putting together a committee with community members to help incorporate public concerns and ideas.⁹⁰ This is important for the *municipio* because as there is more competition within the government, there are more ideas expressed, and a need to include a more diverse public in decision-making. This is also

⁹⁰ The committee includes community member with a background in environment, for example academics and personnel from non-governmental organizations.

likely to spur progress on decentralization as the public and local officials work to achieve their local agendas.

Baja California's first PAN governor, Ernesto Ruffo, worked to grant the *municipios* more power and greater responsibilities—more decentralization—not just because he was not as tied to the national party, but also because he was the former municipal president of Ensenada. Because of this background, Ruffo understood the concerns held by municipal presidents. As noted by Eugenio Elorduy Walther (1995), the Ruffo administration was concerned with strengthening the development and resources of the state and local *municipios* so that these governments could adequately respond to the needs of their citizens. Ruffo incorporated into his state administration more technically skilled officials (*técnicos*)—who have been replacing the older, more entrenched, and less responsive senior officials. Ruffo was also more open to municipal presidents initiating reforms of their own, and his methods of implementation were different than his predecessors: more open, more efficient, and more careful to match budgets and actions (Rodríguez and Ward 1994: 68; Pineda-Pablos 1999). However, this greater autonomy for the *municipios* was double-edged. The local administrations were obliged to take on an increasing share of responsibility for service provision and they were given the authority to issue a wide range of licenses and to collect property taxes, but the accompanying rise in *municipio* funding was not generally sufficient to support the new responsibilities.

Ruffo also aimed to convince residents that accountability for progress lies in the hands of both the people and the government, that citizens should take an active role in guiding Baja California's social, political and economic development, and that

partnership, rather than paternalism should prevail.⁹¹ Ruffo's moves set the stage for administrative decentralization. They left government officials and citizens of Baja California expecting greater responsibilities at the *municipio* level and greater cooperation among the governmental levels.

Another change that has left many citizens believing there will be greater dispersion of power within Baja California is the development of political competition for elected office, or *alternancia* (the switching from one governing party to another).⁹² Access to power has become increasingly competitive. This recent competitiveness within the various levels of Baja California's governments has fostered new forms of policy-making and has obliged PRI authorities to be more responsive to citizen demands. Evidence for this is found in Pineda-Pablos' study of water systems within a number of border *municipios*, including Mexicali, Tecate and Tijuana, where he found that "there is a significant difference in water management among the group of cities that have experienced political *alternancia* and those that remain dominated by the governmental official Revolutionary Institutional Party (PRI)...*alternancia* plays a positive role on improving urban services..." (Pineda-Pablos 2001: 20). José Luis Moreno, professor of ecology at the Colegio de Sonora, agrees with Pineda-Pablos' discussion, stating that the changing parties within Baja California's the state and *municipio* governments has helped these governments become more effective and responsive, push forward more environmental legislation, utilize resources more effectively and strengthen managerial

⁹¹ These general aims were incorporated into Ruffo's state development plans and included educating people about local and urban politics so that they could better use the system to address their needs.

⁹² As discussed in chapter three, prior research suggest that pluralism and *alternancia* have been key factors in improving government performance and the distribution of power (Rodriguez and Ward 1992; Pineda- Pablos 2001).

systems (2000, personal interview). Most observers believe that the *alternancia* within Baja California has improved the state and local governments' enabling environment through passage of more environmental legislation; human resource development, with improving government officials' attitudes thus creating a positive environment in which to work, creating the ability to draw in more experts; and institutional development through more effective use of resources and more positive participation from citizens. All of these build capacity for increasing decentralization.

Not all, however, has been transparent and "forward moving" since the initiation of *alternancia* in Baja California in the 1980's. In the mid-1980's, for example, Miguel de la Madrid set aside a 3000-acre area within Tijuana as an "urban forest," a permanent green area around the Tijuana River, administered by SEMARNAT. De la Madrid, supported by state and municipal authorities issued a decree assigning the land "in perpetuity" as a territorial reserve exclusively for ecological purposes. Since the PANistas' accession to state and local power in Baja California, this ecological area has received unprecedented attention. The area has become a pawn in the bargaining between the nationally dominant PRI government and locally strong PAN leaders (Manson 1999), with each wanting to utilize the ecological area to benefit their own party. Thus, federal, state and local party leaders disagree about management of the ecological region. This case shows two differing things. First it makes it clear that some political decentralization has occurred—the state and local levels of government do have more political and administrative power than they have had in the past. The fact that there is room for political jockeying among parties at the levels of government increases the potential influence of states and *municipios*. However, as the Tijuana green belt case

shows, even where policy authority is decentralized, the federal government still has a substantial amount of clout over environmental and water matters within the state of Baja California, if only through the allocation of fiscal resources.

International Influence

Along Mexico's northern border in general, rapid urbanization of border cities, industrialization or *maquilization* within these cities, and these cities international impact on public health and natural resources in the U.S. has contributed both to the mobilization of civic demand for better environmental protection and persistent U.S. diplomatic pressure for the mitigation for environmental pollution generated in Mexican border cities. This, in turn, has motivated scholars and NGOs to work on both sides of the border. It has also spawned a substantial set of binational agreements for cooperation on environmental improvement along the border in the officially designated border zone. Most of these agreements contain some language promoting environmental and water decentralization.

Looking specifically at the northern border state of Baja California, proximity to the U.S. has meant intensive interaction with U.S. academic institutions and scholars. Also because there are only five *municipios* within the state, all within 100km of the border, it is possible for the majority, if not all of the *municipios* to be targeted for international assistance under the BECC and Border XXI programs.

The *municipios* in Baja California have been involved in cooperative projects with U.S. academic institutions. For example, the Institute for Regional Studies of the Californias (IRSC) at San Diego State University is involved in projects investigating the

Tijuana watershed and Tecate River riparian areas (Michel 2000a; Ganster 2001). Similar centers focusing on U.S.-Mexico collaboration include the Center for U.S.-Mexican Studies at University of California, San Diego, Transboundary Resources Center at University of New Mexico, Udall Center for Studies in Public Policy University of Arizona, Southwest Center for Environmental Research and Policy—a consortium of five U.S. and five Mexican universities, among others. Working with academic institutions and scholars has resulted in the sharing of resources and combining knowledge. This in turn has benefited both the environment and those working to protect it, including not only NGOs on both sides of the border, but also the involved state and local governments.

In the case of IRSC's work with Tijuana and Tecate, one area of focus has been the Alamar River. Research done by IRSC investigators with help from Arizona State University, and the Municipal Planning Institute of Tijuana (*Instituto Municipal de Planeación*, IMPlan) resulted in geohydrological, ecohydrological information—data IMPlan was not able to compile on its own (Michel 2000a; Ganster 2001). Additionally research was done on possible ecological solutions and a policy analysis was completed to further inform all affected by or interested in the Alamar River. These results were reported in town meetings and community dialogues and a booklet was published in Spanish and English to further educate the public and disseminate the information on both sides of the U.S.-Mexico border. The immediate results from this collaborative work include IMPlan and the local public gaining a more complete understanding of the Alamar River situation, which has led to the development of a local landslide rehabilitation project, a park project along the Alamar River, and a group of

knowledgeable citizens collaborating on the construction of the park on a voluntary basis (Michel 2000a, 2001). Also, the U.S. researchers were given access to the inner workings of a Mexican government agency and thus information on what their opinions and procedures will likely be in future watershed issues involving both sides of the U.S.-Mexico border. The longer-term results from this collaborative work will hopefully continue to include increases in citizen participation concerning environmental policies, greater information sharing for individuals within the bi-national watershed, and ultimately more informed watershed approaches for protection and restoration of rivers.

Thus, in the context of increasing capacity for decentralization, Baja California and its *municipios*' relationships with the U.S. border states, as well as their academic institutions and cities, increases information and resource development. This development has worked to empower local decision-makers and agencies, increase public participation, and strengthen the argument that local governments have the capability to access needed resources to make and implement policies concerning regional environmental and water management and conservation.

Another source of international aid has come from international organizations. The World Bank's *Programa Ambiental Frontera Norte de México* (PAFN) (Mexico's Northern Border Environmental Program), NAFTA's BECC and NADBank's programs, and Border XXI all add to Baja California's resources for environmental protection, and help border *municipios* take control of their local issues, write clear legislation, and improve efficiency of administration. All five of Baja California's *municipios* fall at least partially within the border zone and thus, all the *municipios* are eligible for PAFN and BECC-NADBank funding.

Table 6.10: PAFN Support and BECC-NADBank Projects in the State of Baja California

| | |
|--|-------------------------------------|
| <i>Municipios</i> with PAFN funding (1994-1999) | Mexicali, Tijuana |
| % of Baja California <i>Municipios</i> with PAFN Funding | 40% |
| % of Baja California Border <i>Municipios</i> with PAFN Funding | 40% |
| <i>Municipios</i> with BECC-NADBank Projects (1994-2000) | Ensenada, Mexicali, Tijuana, Tecate |
| % of Baja California's <i>Municipios</i> with BECC-NADBank Projects | 80% |
| % of Baja California's Border <i>Municipios</i> with BECC-NADBank Projects | 80% |

Source: EPA 2001, 14, 125.

Table 6.10 shows that four of Baja California's five *municipios* have received support: Mexicali and Tijuana have received support from both PAFN and BECC-NADBank and Ensenada and Tecate have received support from BECC-NADBank. Furthermore, all the *municipios* supported by the international programs in Baja California have either written or reworked environmental legislation since 1994 when the international programs began. Although the programs are far from the only change these *municipios* have encountered in the last seven years, it is possible to suggest that their incentives for decentralization have worked to encourage the development of more extensive decentralization legislation. Support from the international programs has strengthened the technological and informational resources in addition to improving the infrastructure within the *municipios* of Baja California, all of which help build the capacity for both environmental and water decentralization within these *municipios*.

A third form of international aid comes from the U.S. Environmental Protection Agency's Border XXI programs. The border *municipios*, particularly Mexicali, Tecate and Tijuana, have the added privilege of access to technology, and experts who

understand the technology, from the Environmental Protection Agency (EPA) in San Diego (Romero and Chávez 2000; personal interview with Gonzalez 2001). The EPA has worked with the border agencies in order to improve environmental conditions in the abutting regions. The border *municipios* benefit from this assistance with improved human resource development (experts) and institutional development (technology) capacities. Also, the Border XXI U.S.-Mexico Border Community Grants Program provides *municipios* with resources to help build capacity for environmental and natural resources protection at the local level. These grants were awarded in 1995 and 1997, described in Table 6.11.

Table 6.11: U.S.-Mexico Border Community Grants

| Year | Location | Project | Summary |
|-------------|---|---|---|
| 1995 | Campo, CA; Baja California | Building a Kumeyaay Environmental Strategy | Developed water quality control plan and cross-border planning mechanism to enhance long- range environmental protection on reservation lands |
| 1995 | San Diego- Tijuana Border Region | Environmental Priorities, Needs, and Solutions in the San Diego-Tijuana Region | Established proactive environmental planning process through public outreach |
| 1995 | Tijuana River Watershed | Tijuana River Watershed Toxics Data Project | Assisted Tijuana River Watershed Geographic Information System with identifying data. Developed outreach for dialogue. |
| 1997 | San Diego, CA; Tijuana, Baja California | Interagency Coordination, Technical Exchange, and Chemical Emergency Response | Offered training courses for firefighters and first responders on responses to chemical spills |
| 1997 | Tijuana, Baja California | Water Protection and Hygiene Education | Increased understanding of environmental sanitation, demonstrated techniques for water storage and disinfection. |
| 1997 | San Diego County, CA; Tijuana, Baja California | PROBEA: a Teacher Training Model | Trained teachers in principles of environmental education. |
| 1997 | CA; Baja California; AZ, Sonora | Border Environmental Resource Guide | Compiled, published and distributed Resource Guide on environmental resources |
| 1997 | Baja California; Sonora | Colorado River Delta Restoration | Evaluated water quality and flows in the CO River wetlands and assessed wetlands and near- shore marine resources |

Source: EPA 2001, Appendix 8.

Table 6.11 shows the variety of areas and projects where resources community grant resources have gone. Although not all of these directly relate to decentralization, by supplying a strengthening in information, in experts, and in technology, they are helping to build capacity for decentralization of environmental and water policies.

Baja California's *municipios* all fall within the designated border zone, and three of Baja California's largest cities are located on the border and thus have sister cities in the U.S. with academic institutions and NGOs interested in collaborating. This proximity to the border, in addition to Baja California's unique feature of having only five *municipios* and having extensive concentrated, urban populations, has afforded Baja California access to a substantial amount of international resources. The consequence of these resources is Baja California's increased capacity for decentralization through international resources not as readily available to other Mexican states.

Public Participation with Non-governmental Organizations and Governmental Agencies

One final element to look at when exploring the process of decentralization is public participation. Public participation is generally assumed to contribute to capacity building for decentralization of environmental policy. Encouraging society members to participate in political life creates a local awareness and a greater desire to see decisions that affect local conditions made at the state, if not local level. Public participation also allows for a more meaningful, inclusive approach to policy design and implementation.

Recent changes in Mexican law have increased formal support for greater public participation. The 1995-2000 National development Plan put forward strategies for the promotion of citizen participation in public affairs (SEMARNAP 1995). This federal level plan formally promotes public participation at all levels of government and calls for the sub-national governments to follow with programs to increase public participation.

Within the state of Baja California, the Law of Ecological Balance and Environmental Protection of the State of Baja California proclaims public participation

an important component of environmental protection and thus provides considerable opportunities for public participation in environmental protection at state and local levels. The law charges the state and *municipio* governments to encourage public involvement and includes provisions for public access to information. Although the impact of the legal incorporation of public participation is not overly apparent, due in part to poor program integration and general lack of assessment now available, what is evident is that public participation has become a clearly articulated formal objective in Mexican environmental management.

However, this law does not provide guidance on *how* the public will access information and requires that individuals show a “legal interest and need” for environmental impact review documents, leaving interpretation of what “legal interest and need” is up to the agencies. Thus it does not create a clear pathway for increased public participation and thus increased decentralization. Despite this problem within the law, one case where the state has issued a regulation containing guidance on access to information is the requirement to publish a state *Gaceta Ecológica (Ecological Gazette)* that informs the public of a broad range of activities undertaken by the state’s Dirección de Ecología.

Another central vehicle of public participation within the government is the Consejo Estatal de Ecología (State Ecology Council). The council is comprised largely of citizen representatives selected by the *municipios* who are responsible for approving state plans and programs and reviewing state actions on environmental matters discussed in the Law of Ecological Balance and Environmental Protection of the State of Baja California. The idea behind the council was to bring together government officials,

NGOs, and citizens for collective leaning and planning focusing on multidimensional problems (Herzog 200; Lara 2001). The existence of the council appears to support increasing decentralization within Baja California. However, again, it also has some weakness that take away from its stated ideal of promoting public participation.

According to Baltazar Macías of the Grupo Ecologistas Gaviotas, the council is at the point of eliminating the public participation with a series of reforms that are being considered (Angulo 2001b). Thus, its current existence allows for a degree of decentralized decision-making, but if the citizen element is eliminated, it will reflect a decline in the decentralization within the state government.

In reaction to the government's formal call for greater public participation and civil society's desire to have more influence on environmental and water issues, the number and variety of NGOs within northern Mexico has increased almost exponentially in the last few years. NGOs have taken it upon themselves to represent the interests of the public and to give people a voice within the political arena. As with Sonora, counting established NGOs provides a snapshot view of avenues of influence and selected modes of public participation.

In Baja California, there are twenty-three environmental NGOs (see Table 4.11 and Appendix C). Thus Baja California is the northern border state with the most environmental/water NGOs. This tells us that within Baja California the public has substantial opportunities to utilize NGOs for public participation. There are NGOs in every *municipio*, although the vast majority are situated in Tijuana—which is fitting since the largest percentage of the population also exists in Tijuana. Citizens throughout Baja California can voice their concerns through NGOs, which provides greater visibility than

does a single individual, thus increasing the voices participating in environmental and water issues. This increases the capacity for building decentralization.

Recognizing the increasing role played by NGOs in the name of public participation, it is necessary to take a look at the types of NGOs now developing. Within the state of Baja California, the first group of NGOs that made substantial inroads into politics was the national or regional NGOs. Many of these, particularly those located directly along the U.S.-Mexico border, have been strongly influenced by U.S. NGOs (Herzog 2000: 205; Ruben Lara 2001). Within Baja California, Las Gaviotas and ProEsteros have been U.S.-influenced; ProEsteros was even created with the help of U.S. environmentalists. Furthermore, many of the groups have received funds or equipment such as computers from U.S. supporters. The funding from U.S. groups in addition to the NGO's national or regional standing has made many of these groups fairly high-profile NGOs. According to George Kourous (2001) the support base in Mexico for many of these NGOs is substantial, revealing that although the U.S. is influencing the NGOs, they are not defining the agendas to fit purely the desires of those in the U.S.

These U.S.-influenced groups and their publics do hold an important position within civil society. In numerous areas of the environment (including water) there is little coordination and collaboration between the different levels of government, thus it is private investors and NGOs, not state or local governments that are providing public services (Herzog 2000:206). As a case in point, many of the NGOs that have been around for years started as a response to the traditional neglect of the border region and as a means of articulating demands for improved environmental and water protection. Over the past decade, a number of these NGOs have developed persuasive agendas and played

instrumental roles in helping shape local and regional policies within Baja California (Liverman et al. 1999).

More recently, two other types of NGOs have begun to develop in Baja California. First, composite groups have made their presence felt. For example, the end of 2000 saw a number of organizations, businesses and *colonias* pulling together with “Salvemos a Mexicali” a project that will host workshops and lectures to explore ecological issues (Rodríguez Moreno 2001). Second, community-based NGOs, many which coalesce around a single, local issue, have begun to surface. Both of these types of NGOs have begun to exert influence alongside the more traditional national or regional groups, although the ability of all these groups to function is severely constrained by the federal government since it does not accord NGOs legal standing (Liverman et al. 1999). Additionally, as noted by Baltazar Macías, Mexicali representative for the NGO Grupo Ecologists Gaviotas, environmental groups and citizens are ignored in the decisions made by the state and local governments and thus public participation is lower than it should be. However, recent research reveals considerable growth within the NGO sector and suggests with the growth NGO’s will acquire greater future influence in Baja California’s environmental policy-making process (Zabin 1997; Liverman et al. 1999; Lara 2001, personal interview).

NGOs and private citizens have also increased their level of public participation through editorials in the local newspapers. *La Cronica*, one of Baja California’s major newspapers, prints *Diálogo Directo*, a section where groups and citizens are able to publicly express their concerns about environmental problems and support for ecological actions taken. Finally, a US representative to the BECC suggested that the increased

levels of public participation required for BECC projects have had a “ripple effect” within Baja California, causing the state’s residents to expect public meetings and greater transparency (Saldaña 2003). Although not formally substantiated, it is realistic that the BECC’s procedures are adding to a climate of greater public participation.

Clearly in Baja California, public participation is increasing, particularly through environmental/water NGOs. This increase in participation is strengthening local influence, drawing the attention of both state and federal actors. This increase in attention, if nothing else, accentuates the need to incorporate local interests within the decision-making processes, and as such reinforces the tendency towards decentralization.

Discussion

Within this section three factors that can affect decentralization were discussed: opposition parties, international influences, and public participation and NGOs. The first of these, opposition parties, have been shown to have the ability to impact the political system as a whole. Within Baja California, the shift from PRI to PAN control of the governor’s office initiated a trend toward greater decentralization. First, by removing the traditional decision-makers and along with them standard operating procedures, Baja California has been able to move past the old politics and develop new policies. As a part of this, the state of Baja California has pushed for greater decentralization not only at the federal to state level, but also at the state to local level. Second, because of PAN’s success within the state of Baja California, the PRI promoted municipal reform within the state and its *municipios* in hopes of improving their image without giving up too much power. This backfired to some degree—the PRI lost a substantial amount of control

within Baja California and this has created a situation where citizens, local, state and federal officials have voiced their support for decentralization.

The second factor, international influence, occurs in a number of ways within Baja California. The various international social organizations (including some NGOs), academic institutions, and international agencies and organizations that work with Mexican states and *municipios*, are most active within the border zone. Furthermore, all of Baja California's *municipios* fall within the border zone, thus they are not only eligible for but actually receive greater support than the majority of the other border states' *municipios*. This works in favor of decentralization within Baja California. The added resources: experts and expertise to help with concerns; technology which improves both accuracy and efficiency of information on environmental and water issues; and the fiscal resources that allow for greater autonomy on the part of the *municipios*, all help to build a greater capacity for decentralization.

Finally, the third factor discussed in this section, public participation, also plays a role in creating greater capacity for decentralization. The increasing opportunities for public participation within Baja California—legal actions taken by various levels of government, and a substantial number of international and domestic NGOs making themselves heard—reflect, in part, government recognition of the importance of public opinion and underscore citizens' confidence they have greater opportunity to affect environmental and water policies. This increased awareness on the part of the citizens is a reflection of at least a sense of more power at the local level—the level where citizens are more likely to make an impact.

Decentralization in Baja California's Environmental and Water Policies: Snapshots of Progress

Unlike the state of Sonora, Baja California has not seen one overarching environmental concern that encompassed both environmental and water issues in the last five years. Therefore, this next section will look at two cases that illustrate progress and problems in environmental decentralization. The first case centers on the provision of clean air in Mexicali, the second case review progress in transferring authority for municipal water provision to the *municipios*.

Environmental Policies

The previous sections reveal that within Baja California, although budgets do offer some fiscal support to environmental protection, thus increasing the number of personnel that can be hired and resources that can be obtained, the fiscal resources are limited and thus are a major cause of the lack of implementation and expansion of environmental policies. In addition, despite Baja California's substantial number of NGOs that focus on environmental concerns, the numbers of citizens involved in these organizations is rather minimal. This adds to the generality of environmental NGOs—there are not enough human resources to go around, so many environmental NGOs attempt to address general environmental issues instead of focusing on specific concerns. All of these factors have led to problems in the implementation of environmental programs within the State of Baja California.

One example of an environmental program that suffers from both budgetary concerns and political and public support is Mexicali's Clean Air Program. The *Programa para Mejorar la Calidad del Aire de Mexicali* (Proaire) was designed to function in conjunction with the Border XXI's bi-national workgroup for air quality

programs. Mexicali realized its extreme problem⁹³ with air pollution and wanted to work with this issue as a part of their *Programa de Desarrollo Urbano de Centro de Población de Mexicali, BC 2010* (Development of Urban Population Centers, Mexicali 2010) program. Thus, in 1999 the *municipio* put together a program with support from the state and a number of federal agencies (SEMARNAT and INE). A 243-page SEMARNAT document was published at the end of 1999, reporting the current conditions, listing the goals, and discussing strategies and actions to meet the goals (SEMARNAP 1999).

Despite these impressive beginnings, once the document was completed and the projects were set to begin, the local officials working with Proaire found themselves incapable of implementing the program. The local government did not have the financial support (due in part to lack of political support) or human and institutional resources needed for implementation (Angulo 2001a). According to Mexicali councilman Mario Vargas Ruiz, the main problem with the implementation of this program was the lack of resources, although the lack of personnel and citizens who see air pollution as a problem has also been detrimental to Proaire (Vargas Ruiz 2000). The coordinator of Ecología del XVI Ayuntamiento de Mexicali, Francisco Montaña Fong, agrees with Vargas Ruiz, commenting that the government inspectors have not and do not have the needed capacity or authority to improve implementation of the program (Angulo 2001a).

This brief discussion of the development of Proaire reveals that in the beginning there appeared to be a move towards decentralization of fiscal resources. The Mexicali government decided to pursue a plan to work on air quality, and on paper the state and

⁹³ Julio Lampell (2002), the Acting Cross-Border Program Director, reported at San Diego Dialogue's Forum Fronterizo program that Mexicali's concentration of pollutants such as carbon monoxide and PM₁₀ has been considered "serious" since 1997.

federal governments supported them both politically and financially. However, when the time came for implementation, the *municipios* found itself in an altogether different position. The political support and thus fiscal resources seemed to have dissipated, and the resources Mexicali had to put into this environmental policy was not sufficient to proceed with the projects. Thus, a *municipio* took the initiative to plan an environmental program, showing a level of decentralization in the fact they believed they had this decision-making ability. However, the *municipio* did not control a large percentage of funds that were to go to the program, showing a lack of economic decentralization. Ultimately it has been this lack of resources, the inability to determine budgets, which has stalled Proaire. However, it is interesting to also mention the lack of support behind Proaire. Both within the political arena and within the public, people decided to not put as much weight onto this program. The general consensus has been that there are more important issues the governments need to finance—specifically issues such as potable water, a basic necessity (Vargas Ruiz 2000). People realize that air quality affects their quality of life, however the impact does not seem to be as direct as it is with the issue of water.

The lack of fiscal resources is not uncommon for local level programs in Baja California. Because the state and federal governments distribute funds, the local governments are the proverbial “low man on the totem pole.” This lack of fiscal resources not only lessens the capacity for implementation of programs overall, but also minimizes *municipios*’ ability to train personnel for increasingly technical responsibilities—lowering their human development and institutional capacities. As this case shows, without greater decentralization of monies from the state and federal levels it

will continue to be extremely difficult for *municipios* in Baja California move forward with decentralization of environmental policies.

Water Policies

An example of the process of decentralization of water policy also shows barriers encountered due in part to lack of fiscal resources. An examination of Baja California's water agency reveals the limits of decentralization. As previously noted, the CNA set the nation-wide goal of decentralization for water management. Baja California's application of this goal—decentralization of water management from the federal government to the state government—can be seen through an annex to the formal structure for providing water and sanitation. This annex allows for the transference of authority and major levels of funding from CNA to SAHOPE (Brown 1999). Both agencies provide equal shares of financial resources and determination of water tariffs is controlled by the state legislature. Additionally, the CNA provides technical support for infrastructure while SAHOPE assumes formal responsibility of management the public works within the area. According to the Director General of SAHOPE, Ing. Fernando Acebas Salmon, further efforts to decentralize the delegation of authority, resources, and responsibility of water and sewerage systems are underway (Brown 1999).

The second piece of the CNA decentralization plan was to transfer administrative and fiscal responsibilities from the state agencies to the *municipios*. Within Baja California decentralization from the state to the *municipio* level has made less progress. Administrative and fiscal responsibilities for water supply have remained with the state, although in a deconcentration move the state did set up Comisiones Estatal de Servicios

Públicos (CESPs), state agencies, in each of the *municipios*. These CESPs are now responsible for project planning and construction.

Despite this current state-centered approach, measures for decentralization from the state to the local levels of government are slated for implementation. *El Programa de Reforma Administrativa* (Administrative Reform Program), *Programa Nacional de Desarrollo* (National Development Program) advocates the transference of administrative responsibilities and fiscal resources from CESPs to the local government in the next several years (Brown 1999). However, as of yet, the water agencies have not progressed further than deconcentration. Baja California's state legislature has neither transferred water tariff responsibility to the water agency nor has it established legal provisions that would allow water agencies to contract private enterprises to manage water resources. CESPs are still managed by the state; the *municipios*' mayors and *ayuntamientos* have little or no input into CESP plans, management or actions, despite the fact that a number of Baja California's local branches make enough money to cover their expenses (Guillén López 1996, 107; Carter 1999, 154; Guzman 2002). As one critic notes, "[the] state utility [is] an unnecessary and costly intermediary," *municipios* should be able to run their own water management systems as stated in the Mexican constitution (Professor at Instituto Tecnológico de Tijuana 2001).

Both this information and Pineda-Pablos' (2001) study of border water agencies reveal that Baja California has not responded to the recommendations for water supply management reform. Instead the state and its water agency have chosen to continue operating within their extant legal framework. As a paradoxical twist, Pineda-Pablos (2001) notes that non-compliance with the CNA's recommendations has possibly led to

better performance. Baja California has not followed all of CNA's recommendations and yet has performed relatively well. The state administration has been proficient at achieving levels of efficiency higher than most of the municipalized agencies: improved water service delivery while maintaining financial viability.

This brief look at Baja California's water agencies reveals the existence of delegation on the federal-state level and deconcentration on the state-local level. The sub-national state water agency is granted the right of some decision-making and minimal fiscal autonomy from federal agencies, although the state agency is still fairly reliant on the CNA for monetary resources and technological assistance. The *municipio* level has not seen much more than a redistribution of management responsibilities to the local branches of the state agency.

The basis for a lack of progress on decentralization at the local level as compared with the state level can be found at both the local and state levels. First, some local governments lack interest in assuming responsibility for water provision, due to the financial burden it would place on the *municipio*. Second, state governments are in no hurry to decentralize these responsibilities because of the financial interest in maintaining control over revenue generating systems (by the mid 1990s, CESPM in Mexicali was making a profit and helping alleviate financial problems other areas [Guillén López 1996, 107]). Revenue producing agencies also enhance the opportunities for political patronage.⁹⁴ There is also an administrative advantage of having state utilities in charge of *municipio* water service. State utilities can buffer service provision and projects from the three-year local election cycle, instead limiting the disruptions to every six years,

⁹⁴ Many states have failed to decentralize not only the water systems that make money, but also those that do not cover their expenses. This points to a non-financial reason behind keeping these water systems, which can be explained by the use of the systems to reward political supporters.

when the state governors change. This allows for planning and implementation of longer-term projects.

These examples from environmental and water policies reaffirm what has been previously discussed—there are still many constraints for greater decentralization within Baja California. That is not to say there has not been progress, the state of Baja California has clearly moved in a direction of greater decentralization, however in general there is still a long way to go to reach devolution.

Conclusions

Environmental and Water Policies

Within the state of Baja California, both environmental and water policy decentralization are moving forward, slowly. The basis for this progress, and the pace of progress can be gleaned from characteristics surrounding the decentralization process. First, a review of environmental legislation within the state of Baja California shows a state quick to react to federal mandates to create state and municipal level legislation, although the legislation is quite general and thus somewhat ambiguous. This provides the basis for the state to play an active role in environmental matters falling under its jurisdiction—the jurisdiction not specifically reserved for federal authority. Additionally every *municipio* in Baja California has written an environmental *reglamento*, revealing an enabling environment for decentralization of environmental policy at all levels of the government. Water legislation in Baja California is not as widespread as is the environmental legislation. The state government has failed to enact new water laws despite federal decentralization programs, although it did write an annex for minimal

economic decentralization from the CNA to SAHOPE. Furthermore, this limited decentralization at the state level in combination with the high price of taking control of water services has given *municipios* little incentive to write their own water legislation and thus claim responsibility for a basic necessity. Therefore, although there are some legal changes decentralizing water to the state level, this has not been carried through to the local level of government.

Second, our look at the agencies established to deal with statutory responsibilities, as well as our examination of state and *municipio* budgets within Baja California suggests some movement towards administrative and economic decentralization within the state. Within the environmental arena, the mere existence of agencies shows that there has been a structural effort to disperse administrative responsibilities from the federal to state and state to *municipio* levels of government. Additionally the budgets reveal line item listings with funding for the environmental agencies. Although not given excessive (some would suggest not even sufficient) budgets, these agencies are listed within the budgets at the state and *municipio* levels, a move that guarantees greater recognition and fiscal responsibilities for these agencies. Establishing the possibility of administrative and economic decentralization for water policy through these same factors is a little more difficult. Water agencies have been created at the state level, however instead of creation of a local level agency for the *municipios*, each *municipio* houses a branch of the state's water agency. Budgetary characteristics are not very clear-cut. The state budget lists water agencies in a tangential manner—including them within the budget for the larger SAHOPE agency. The *municipio* budgets do not list water policy—as is expected since the agencies are state run and not under the control of the local governments. Overall

these characteristics reveal delegation from the federal to the state level of government but only deconcentration from the state to *municipio* level for water policy in Baja California.

Finally, the last section of this chapter explored a set of three factors that can affect decentralization in general within the state of Baja California: opposition parties, international influences, and public participation including NGOs. Baja California was the first state to elect a governor from an opposition party. This shift from PRI to PAN control of the state government removed longstanding officials and as such opened up the state to the development of new policies, including increased decentralization. The strength of PAN within the *municipio* governments and their increased influence with the state (due to a party connection) has also helped decentralization in general at the local level.

Another factor taken into consideration was international influence. Clearly the state of Baja California is influenced by international factors simply due to its location on the border. However, Baja California's unique situation where all of its *municipios* fall at least partially within the border zone opens the local governments up to greater support from international organizations—international organizations, both social and financial, tend to give greater amounts of support to the border zone. This international support comes in the form of expert, technological, and informational support to local groups and governments with international concerns (such as pollution and health issues) and as fiscal resources designed specifically to support decentralization programs. Both of these directly affect the process of decentralization within the state of Baja California. Finally, public participation was also explored, revealing increasing opportunities for public

participation within Baja California. Both legal actions taken by various levels of government, in addition to a substantial number of international and domestic NGOs pursuing a greater voice within government decisions have pushed the envelope for greater influence from the sub-national levels.

A Larger Picture: Baja California

Taking these various factors and fashioning them into a larger picture, it is possible to draw a number of conclusions for environmental and water policies within the state of Baja California. First, in Baja California overall, the creation of legislation and agencies for both environmental and water concerns suggests greater emphasis upon efficiency and accountability, decreased emphasis on paternalistic government and a growing focus on an increasingly responsible citizenry. This points toward progress in the process of environmental and water policy decentralization.

Second, increasingly the *municipios* within Baja California have moved from top-down, fragmented management of the environment and natural resources, including water, to a more bottom-up, local approach that encourages community-based participation and management. As a part of this there is a much wider assortment of stakeholders who work together to achieve environmental, economic and quality of life gains within the *municipios*. This more-expansive participation lends itself to a wider reaching distribution of benefits, and thus greater community support, all of which are the base for increasing levels of decentralization.

Baja California and its municipalities appear to be in the process of bringing federal, state and local government officials, NGOs, academics and citizens together for

collective learning and planning focused on multidimensional problems, rather than concentrating on jurisdictional divisions. This develops networking and cooperation with mechanisms for sharing knowledge, thus it helps to relieve the burden of gathering and handling huge amounts of information needed for integrated environmental management (institutional development capacity building). Access to a broad range of information sources begets more efficient and effective environmental management decisions. It also allows the lower levels of government (state and local) to accomplish environmental goals with fewer resources, thus creating more ease within the decentralization process. This building of local institutional capacity has furthered the process of decentralization, although it has not eliminated the need for national and international support.

Fourth, looking more specifically at the issues themselves instead of the administrative structures, local, state, and federal authorities in Baja California are still unable to manage many of the delicate problems concerning enforcement of pollution control policies. Part of the reasoning behind this is the fact that strong group interests hamper environmental policy enforcement and changes to water regulations, and that appointments of senior officials and middle managers in environmental agencies are determined more by political interests than by the candidates' science or engineering skills. Put these things together and the result is a severe lack of organizational, institutional and technological capabilities, which, in turn, hinders environmental protection and eventually decentralization.

Finally, despite all of the problems associated with Baja California's state and local governments' environmental policies, there are some features that point toward a genuine advance within Baja California's environmental and water decentralization

program/policies. First, the Ruffo administration's encouragement of checks and balances not only increased *municipios*' responsibilities, but also transferred property assessment to the *municipios*—enabling them to generate their own revenues and to spend those revenues as they see fit. This indicates a willingness to share or surrender some of the power traditionally granted to the state government. This shift lends credence to the stated intent of increasing municipal autonomy in general. Second, particularly for water policies, responsibilities being passed to the municipal level include areas of importance to the future development of the entire state. For example, decisions about water system infrastructure and facility closures for polluting companies now fall to *municipios* government, even if the agencies in control of the water itself are still state run. If the state did not intend to share some of its power with lower levels of government, it certainly would reserve such crucial areas to itself.

Baja California in the Context of Mexican Decentralization

Finally, a few comments on how Baja California fits into the national decentralization movement within Mexico. Two trends appear to reveal themselves through the process of decentralization of environmental and water policies in Baja California. First, traditionally Mexico has functioned under a dominant central influence: the geographical center of the country over the geographical periphery and the political central government over sub-national governments. However within the last 15 years, this influence has become less absolute, particularly within Baja California. Baja California was the first state to successfully elect and bring into office a governor from the opposition party, Baja California has seen more *alternancia* than most state and local

governments, and Baja California has been quick to create legislation that expands the state and local governments' rights and responsibilities. This is fitting, because historically when change has come to Mexico, the periphery, more often than the center, has offered insight into the tensions that lead to new developments. Baja California continues this trend with progress, albeit slow, as evidenced with environmental and water policy decentralization.

The rumblings of the state and *municipios* of Baja California have consistently addressed this center-peripheral struggle for control, ultimately causing change within the prevailing order of first spatial, then administrative control and with efforts being made for progress in political and economic decentralization. Within environmental and water policy decentralization, these changes can be seen first with deconcentration when federal agencies expanded beyond Mexico City and set up offices within Mexico's states—a move that many peripheral states encouraged. Shortly thereafter administrative decentralization began to gain force in Baja California as the state government, and to some degree local governments, were charged with administrative responsibilities for both environmental and water issues. Baja California's quick action to write legislation made them a leader in the formal framework of environmental decentralization, and water decentralization at the state level.

Political decentralization, granting state and local governments greater decision-making abilities, was the next type of decentralization that Baja California has advocated. Within Baja California, the political decentralization of environmental policy appears to be proceeding at both state and local levels, improving the prospects for locally generated environmental decisions that better represent their constituents. Water policy

decentralization, however, appears to have plateau-ed for the time being, at least in terms of devolution. Although states do have some decision-making responsibilities, these are generally not passed on to the local governments. Finally, what appears to be the one type of decentralization in which Baja California has not made much progress is economic decentralization. The Baja California case reveals minimal economic resources allocated for environmental policies within state and local budgets, however there are also important fiscal ties to the federal government that are still in place. With water policies there is little to no evidence of any economic decentralization, and substantial evidence that the state agencies are still quite reliant on the federal government. Thus, taking Baja California as a leader in new institutional developments, it is possible to suggest that Mexico is likely to see increasing levels of administrative decentralization and a persistent push for greater progress in political and economic decentralization. Overall the deliberation with which these steps appear to have been taken lead to the possibility that they could reflect a general trend within Mexican decentralization. Further investigation is needed to see if these trends truly can be applied to Mexico as a whole.

The second trend within Baja California that seems applicable to Mexico, as a whole, is the fact that environmental policy decentralization appears to have proceeded further than water policy decentralization. We see this trend at both the state and municipal levels. This is the case despite the fact Baja California's state water legislation was put into place in 1969 and 1979 while its state environmental legislation was enacted in 1992. Environmental legislation got off the ground later, but when it did occur, it included more details of decentralization and thus greater possibilities for implementation

than did the water legislation. This feature may be attributed to the emergence of decentralization as a federally stated goal in the 1980s and 1990s—thus greater acceptance of describing the decentralization process. At the municipal level, there is no question, key elements of decentralization have been attained earlier by environmental agencies than water agencies. The cause for this, as noted earlier, is likely the fact that water is considered a basic necessity while environmental protection, although an important element to public health, is not perceived to be as intensely tied to human survival. Again, more investigation is needed to verify these propositions for Mexico as a whole, yet from account of Baja California's development, it appears a reasonable inference.

Chapter 7: Comparative Analysis and Results

Policy decentralization, administrative, political, economic, or geographic, is a complex undertaking for any country. Add to that Mexico's developing status, its limited fiscal resources, and pressing need to address its citizens' basic necessities, and the process is even more daunting. Despite these limitations, Mexico has embraced the international trend towards decentralization.⁹⁵ Decentralization has been on the presidential agenda since 1983 and has been pursued with greater vigor by the Zedillo and Fox administrations. Both presidents have made extensive legal and administrative changes to accommodate greater sub-national involvement in policy issues. In the environmental arena decentralization measures are evident in environmental protection and management of water resources.

The process of decentralization, transferring responsibility into the hands of a larger number of individuals including those in the sub-national levels of government, can be implemented in a variety of ways. As noted, types vary from political, administrative, economic and geographic decentralization and can be executed through the modes of deconcentration, delegation, devolution or privatization. As seen previously, a number of factors influence a government's capacity to decentralization and thus, affect the type and mode of decentralization. Among the factors are creation of an enabling environment (including legislation), human resource development (including

⁹⁵ The World Development Report (1997) discusses this international trend.

needed experts and a sufficient number of employees), and institutional capacity (including fiscal resources and appropriate technology).

Putting these concepts into practice means structuring clearly established legal frameworks that define decentralized institutions, including how they are to be constituted and how they relate to other institutions. Additionally, decentralizing institutions need to have human resources to carry out the rights and responsibilities transferred to them. And finally, institutional capacity is also critical, including not only fiscal resources but also an active civil society, which can assist substantially in implementing decentralization.

The Mexican case studies of Sonora and Baja California do appear to support this set of discernible capabilities that enhance the prospects for decentralization. Through an exploration of the legislation, agencies and financial resources, political factors, international influence and public participation, this study has identified areas that support progress in the process of decentralization of environmental and water policies, and areas that in effect hinder the process of decentralization of these same policies.

Environmental Policies in Sonora and Baja California

In Mexico, the case studies of Baja California and Sonora reveal that some modification of legal frameworks has been accomplished. At the federal level, environmental legislation purports the transference of responsibilities to the state and local governments. Beginning with the passage of the LGEEPA in 1988 and its inclusion of the concept of *conurrencia*, the federal government was required to adopt legislation establishing joint participation of federal, state and municipal authority over

environmental matters. LGEEPA also grants states and municipalities the right to exercise jurisdiction over matters not delegated to the federal government. Finally, LGEEPA authorizes sub-national governments to adopt their own environmental ordinances and regulations for the purpose of implementing the national environmental objectives and regulations within their region.

As suggested by LGEEPA, at the state level there is another layer of legislation responsible for environmental concerns, and that continues to transfer responsibilities downward—in this case to the local governments. By 1994 most Mexican states had enacted state environmental laws that specified a division of labor among the federal, state, and local governments in delivering environmental protection. Sonora and Baja California were among the states that developed and enacted their state environmental legislation in a timely manner. These actions granted both of the states legal standing for environmental protection. However, neither Sonora nor Baja California produced legislation that was detailed and specifically addressed which level of government is directly responsible for which aspects of environmental protection. Thus, although there is definite progress toward an enabling environment due to the fact that state legislation exists, more explicit explanations of rights and responsibilities would greatly strengthen the state (and local) governments' capacity for decentralization of environmental policy.

As a symptom of this lack of clear delineation, Sonora has yet to pass a much-needed *reglamento*, an implementing law, weakening the state's capacity to enforce its environmental legislation, and creating greater reliance on the federal government and its agencies. Baja California also lacks specificity, however, in contrast to Sonora, Baja California's state legislation has attempted to use this lack of specificity to their

advantage. Instead of taking the lack of clarity as a safeguard and thus relying on the federal government, Baja California views it as room for interpretation and discretion and thus an opening for testing the limits of state control and environmental decentralization.

Moving from state to local level legislation, it is revealed that there is great variation in environmental legislation. Although federal and state environmental legislation have sanctioned local legislation, for a variety of reasons many of the local governments have not followed through with the promulgation of municipal legislation. Some of the most consequential reasons behind this variation in municipal legislation lie in that fact that *municipios* vary in their ability to write and implement environmental legislation. Deficiencies such as these leave many *municipios* to answer the question, Is it worth expending the resources to write the legislation if there is no possibility for the *municipio* to implement its legislation? Those that answer “yes” generally hope to build a legal foundation from which they can contest state or federal decisions in the future. Those that answer “no” generally find themselves with so many immediate demands and so few resources that they are incapable of projecting future concerns. These local governments that lack legislation rely on Mexico’s *nested fail-safe* administrative system, passing responsibility for environmental protection off to the state and federal governments. This allows these *municipios* to focus on more immediate demands.

That said, there are distinct differences between local level legislation in Sonora and Baja California. In Sonora, ninety-three percent of the *municipios* have yet to write environmental *reglamentos* and thus do not have an enabling environmental from which to promote greater environmental decentralization. Furthermore, the *municipio reglamentos* that do exist generally do not have a local focus, but instead largely copy

federal or state legislation. This reveals the lack of a strong, well-developed enabling environment for Sonora's local governments. Specifically addressing the five major *municipios* explored in this research, eighty percent have written environmental legislation, however the one lacking the legislation is the state capital (where it would seem there would be greater access to resources in general). This suggests that although the larger, wealthier *municipios* are more likely than the average Sonoran *municipio* to write environmental legislation, even within these *municipios* there are obstacles to the promulgation of local legislation.

In comparison to Sonora, the *municipios* of Baja California have created a greater capacity for decentralization. All five of Baja California's *municipios* have written and passed environmental *reglamentos*. Therefore, within Baja California, all local governments have legal authority to affect environmental matters within their geographical jurisdiction, and as such have taken an important step to promoting the process of decentralization, through creation of an enabling environment. It is true that many of these follow or even copy the state's Ecology Law, a fact that does not lessen the significance of every *municipio* taking the initiative to fashion some form of local legislation, but does suggest a general rather than clear local focus. Consequently, as with Sonora, many *municipios'* *reglamentos* do lack a strong, well-developed, locally oriented framework from which to base actions that reflect the *municipio's* specific needs. This, in effect, strengthens state and federal control and weakens the local administrations' and agencies' authority.

Agencies and Budgets

As federal environmental legislation for both environmental protection and water management has changed, so have the federal environmental and water agencies. Of late, each new president's administration has made changes to the federal environmental agency, often under the auspices of streamlining policy-making and advancing sustainable development. Currently, under the Fox administration, SEMARNAT is the primary federal institution charged with implementing environmental legislation and regulating environmental issues within Mexico. As the primary federal environmental agency, it is SEMARNAT that controls the purse strings for many of the federal and sub-national environmental projects. Acknowledging its control over fiscal resources while proposing to transfer some administrative responsibilities, SEMARNAT admits that some of its administrative regulations, in effect, do not allow for much progress toward decentralization. For example, writing agreements to transfer responsibilities without taking the time to adjust administrative procedures or allocate the resources to support them creates situations of confusion and, frequently, of immobility.

With confusion surrounding environmental agencies at the federal level, it comes as no surprise that some states also reflect this lack of effectiveness. Sonora, for example, has a number of institutions associated with environmental policies. The agency most directly associated with environmental policies, and Sonora's lead agency for environmental protection, is SIUE. SIUE has jurisdiction in all areas not expressly delegated or defined as the prerogative of the federal government. Despite being the primary environmental agency in Sonora, and raising the level of awareness towards environmental concerns, SIUE's capacity to deal with environmental issues is declining.

Their ecology budget is shrinking, the staff has been reduced to five, and technological resources are limited. Overall Sonora's state budget shows a focus on human necessities such as potable water, and minimal spending on environmental concerns such as conservation and protection.

Unlike Sonora, Baja California has worked to create and/or maintain effectiveness of their agencies. Among Baja California's agencies responsible for environmental policies is the Office of Ecology. The Office of Ecology has legal authority for all matters relating to environmental protection and preservation that fall within the state's jurisdiction. Although the agency does not have excessive amounts of resources, it is generally considered to have sufficient resources to achieve their mandate. Yet even within this agency, where actions are taken for effectiveness, appointments of senior officials and middle managers are often determined more by political interests than by the candidates' science or engineering skills. This, in turn, hinders environmental protection, affects management of environmental agencies, and slows the process of decentralization. A second state agency is the State Ecology Council. This council was created to provide a link between the government and the public and to serve as a check for the Office of Ecology. The State Ecology Council has citizen representatives and its meetings are open to the public, creating an environment that is designed to allow input from a wider array of interests. Although this creates a basis for greater decentralization, the State Ecology Council has substantially fewer resources than does the Office of Ecology, minimizing the actions that can be taken to advance this progress toward decentralization. Overall, although the management implications for Baja California appear to be less

detrimental than those for Sonora, the agencies of Baja California also experience negative management implications due to the design of their environmental agencies.

Finally, moving from the state level environmental agencies to the local level government environmental agencies within Sonora and Baja California, many of the local level *municipios* have made advances toward greater decentralization in the past few years. Within Sonora, most of the major *municipios* have created an office or department charged with environment and ecological administration; some have even created a separate ecology office or commission. Even Hermosillo, which does not have environmental legislation creating an environmental office, has created a separate ecology office. That said, a majority of Sonora's *municipios*' environmental offices appear to be *ad hoc* bodies utilized mainly to deal with public protest or environmental emergencies. Furthermore, these environmental offices frequently do not have a secure source of funding—most local governments depend largely on discretionary revenue sharing from state and federal authorities, revenues that are not granted in proportion to either size or population, but generally due to more arbitrary, political, factors. This creates major obstacles for local governments attempting to address politically unpopular environmental issues. Overall Sonora's local governments' have limited staffing, which leaves them reliant upon state or federal personnel, and have minimal budgets that keep them from hiring trained personnel and acquiring technological support. These concerns constitute substantial limitations to human development and institutional capacity, leaving agencies poorly equipped to understand, let alone implement environmental legislation. Such limitations minimize progress in the process of decentralization, and

directly affect management and policy concerns for environmental resources within the state.

In Baja California, each *municipio* is required to establish an administrative agency for ecology. Three of the five *municipios* have established these agencies, while Tecate and Tijuana are currently utilizing general agencies to cover environmental protection while they develop their ecology offices. The establishment and/or development of the *municipios*' agencies has created greater encouragement for community-based management and appears to be moving all of Baja California's local governments towards greater reliance upon bottom-up administration instead of their traditional top-down, fragmented management. Financially speaking, Baja California's *municipios* fare quite well. The state has granted local governments the right to manage some self-generated income and designed a program so that PROFEPA fines are paid directly to the *municipio* in which the fine was imposed, rather than to the state. These sources of income are administered by the *municipios* and their agencies, revealing enhancements to institutional capacity and local governments' abilities to increase administrative levels of decentralization.

Generally speaking, the cases of Sonora and Baja California reveal that despite changes to federal environmental legislation, sub-national environmental legislation is limited. These limitations at the state and local levels force governments to rely not only upon formal frameworks, but also federal agencies that can dictate the interpretation of the indistinct (or non-existent) legislation that creates the formal frameworks. This ceding of decision-making authority to the federal agencies weakens the enforcing environment and shows that in spite of new federal mandates, the federal government has

not given up large amounts of decision-making power. Additionally, although legislation and environmental agencies exist at all levels of government, resources are still frequently distributed from the top down and thus are less abundant at the state level, and can be quite scarce at the local level. This dearth of resources for, in particular, the local level, makes it difficult to cover basic operating expenses, let alone training of personnel, financing organizational improvements, and expanding the range and quality of public services. Ultimately, limited resources make it difficult for local governments to improve their administrative capacity. In addition, the responsibilities and resources that are transferred to sub-national levels appear to be for administration and frequently do not include either economic or political decentralization. Again this leads to the assessment that the federal government still maintains much control within the environmental arena, and thus minimizes the possibilities for devolution.

More specifically, exploration of these states reveals that, despite issues, there has been movement toward greater decentralization within the states of Sonora and Baja California. Not only are there state level agencies that have defined and are addressing environmental responsibilities, but the states also have resources with which to accomplish at least the minimal level of their stated tasks, giving a degree of institutional capacity for decentralization to all levels of government in both of these states.

Exploring this aspect has also made it clear that Baja California has advanced further in the process of decentralization of environmental policy than has Sonora. Comparing the two states, it is possible to see that Baja California has made efforts that Sonora is no longer taking, or has yet to take: Baja California has set budgets that take into account increasing demands and concerns surrounding environmental issues, Sonora is decreasing

its state level resources for the environmental agency, additionally, Baja California created a state level agency designed to bring in diverse opinions, including public opinions, Sonora has yet to move beyond their major environmental agency, which is overburdened attempting to simply deal with pressing concerns, and that is not structured to deal with diverse opinions.

Likewise at the local level, Baja California has environmental *reglamentos* in every *municipio* while in Sonora only seven percent of the *municipios* have *reglamentos*. Following this trend, although both Sonora and Baja California's *municipios* have local environmental agencies, the *municipios* in Baja California have more secure sources of revenue than those in Sonora, again showing greater progress in capacity for decentralization in Baja California than in Sonora. The agencies in many of Sonora's *municipios* are not much more than ad hoc bodies—although their mere existence increases capacity for decentralization. See Table 7.1 for a comparison of capacity for decentralization of environmental policy in Sonora and Baja California.

Table 7.1: Capacity for Environmental Decentralization in Sonora and Baja California

| | Sonora | Baja California |
|---|--|---|
| Enabling Environment (formal frameworks) | <p>1990 Environmental Legislation</p> <ul style="list-style-type: none"> • Lacks implementing law • Over-reliance on federal government <p>07% <i>municipios</i> with <i>reglamentos</i></p> <ul style="list-style-type: none"> • Lack local focus | <p>1992 Environmental Legislation</p> <ul style="list-style-type: none"> • Reliance on federal government, but also test limits of state control <p>100% <i>municipios</i> with <i>reglamentos</i></p> <ul style="list-style-type: none"> • Lack local focus |
| Human Development and Institutional Capacity | <p>SIUE (lead environment agency)</p> <ul style="list-style-type: none"> • Increased attention on environmental concerns • Budget shrinking • Staff reductions • Limited technological resources <p>Municipal environmental agencies</p> <ul style="list-style-type: none"> • Major <i>municipios</i> created environmental administration departments • 60% major <i>municipios</i> have separate ecology offices • 80% major <i>municipios</i> have ecology commissions • Limited budgets • Financially dependent on state and federal governments • Lack personnel • Except for Nogales (which falls within the border zone) lack technological resources • Poorly equipped to understand let alone implement legislation | <p>Office of Ecology</p> <ul style="list-style-type: none"> • Sufficient resources • Managers often determined by political interests not skills • Staffing adequate • Access to technological resources and vehicles <p>State Ecology Council</p> <ul style="list-style-type: none"> • Citizen representatives, limited public participation • Limited resources <p>Municipal environmental agencies</p> <ul style="list-style-type: none"> • All <i>municipios</i> have departments of ecology • 60% of the <i>municipios</i>' departments are specifically for environmental concerns; the other 40% are currently under general agencies, but are developing specific environmental departments • Property assessments and PROFEPA fines are sources of revenue for the local governments • Line item budget listings for environmental issues in all <i>municipios</i> except Tijuana • Sufficient personnel • Access to technological resources • Access to substantial amounts of information |

In the end, Baja California has created greater capacity for environmental decentralization than has Sonora. This puts Baja California in a more advantageous

position for moving forward not only with environmental policies, but also with decentralization. By building capacity for and a history of management of environmental resources Baja California is more likely to gain public and political support to expand responsibilities for policies in the future.

Water Policies in Sonora and Baja California

Legislation

Similar to general environmental policy, water policy has also seen some progress in the process of decentralization. At the federal level, the 1992 National Water Law, its 1994 by-laws and 1997 modifications, transferred some administrative responsibilities to sub-federal entities (mainly states), supported greater participation in policy-making, and granted greater advancement for privatization. Additionally, Article 115 of the Constitution assigns the *municipios* primary responsibility for water supply and sanitation service, promoting devolution and decentralization of water management and infrastructure and the transference of federal resources, adding to the capacity of the sub-national governments. However, even with these pieces of legislation, the federal government has limited the legal transference of control for decision-making of water policies. This is likely due to the fact that water is a basic necessity and thus the federal government wants to assure services, and the sub-national governments want to minimize their responsibility for such a vital, and controversial, resource.

At the state level, Sonora's water legislation does show some signs of decentralization. Sonora is one of only a handful of Mexican states that formally devolved administrative authority to its *municipios*, although the state has retained

control over Hermosillo and other major *municipios*. Thus, Sonora's water legislation suggests rights and responsibilities not only for the state itself but also for its *municipios*, creating an enabling environment for at least the administrative elements of water policies within Sonora. That said, this legislation also relies upon Mexico's *nested fail-safe system*, frequently referring to federal authority, particularly for decision-making. On the other hand, Baja California has not taken steps to update their water legislation, as has Sonora. Instead Baja California still relies on its 1969 and 1979 legislation, along with an annex to the formal structure, providing for the transference of some funding for administration of water services to the state level. Overall both states maintain substantial reliance upon the CNA, although Sonora has legally transferred more responsibilities than has Baja California.

Looking at the local level, there is no local level water policy legislation. The responsibilities that are given to the *municipios* are generally defined by state legislation, occasionally by legislation at the federal level. This holds true for both Sonora and Baja California, neither of which has *municipios* with water policy legislation outside of a discussion of water quality and quantity included in environmental legislation. Due in part to water's classification as a human necessity and the expense and intensity that come with managing a basic necessity, the states, and subsequently the *municipios*, have not been quick to create formal frameworks defining their responsibilities.

Agencies and Budgets

As is the case with Mexico's federal environmental agencies, Mexico's federal water agency has seen many changes. In recent years, these changes have resulted in the

CNA, Mexico's federal water agency, embracing greater levels of decentralization, autonomy, and private participation concerning water policy. However, even with the changes, the CNA has managed to keep regional and local water interests connected to them through controlling the funding for water projects.

Looking at the state level, Sonora's COAPAES is responsible for operations and maintenance of the existing water services, but is given limited decision-making responsibilities. Many citizens actually do not view this limit to decentralization from the federal to the state agency negatively, as the state agency has a history of ineffective administration. Interestingly, although this reputation as an ineffective agency has limited decentralization on the one hand, it has also created a move toward greater decentralization on the other. Inefficiencies led Sonora's COAPAES to privatize its fee collection and client relations services. Finally, financially, Sonora's budget reveals an adequate amount of fiscal resources for water services, emphasizing Sonora's characterization of water as a human necessity. However, many of the funds for water services are allocated from the CNA, eliminating the possibility for devolution, and creating problems for what state administrators consider an equitable distribution of funds within the state.

In Baja California, there are two state agencies and a consortium of agencies located one per *municipio*, charged with water services: the State Water Commission, State Water Services Commission, and State Commissions of Public Services (CESPs). Decision-making within Baja California generally falls to the first two agencies while the CESPs' manage administration responsibilities. All of these agencies have a fair amount of resources and thus could advocate increasing decentralization, however strong

interests push the state agencies to follow traditional water management procedures. Reliance on traditional standard operating procedures has hindered decentralization within Baja California's water agencies. Thus, overall, both Sonora and Baja California state agencies have made progress with decentralization, yet they both have obstacles they will need to overcome—Sonora's agency needs to improve its reputation and Baja California's needs to face up to large scale water interests.

At the local level within Sonora, the *municipios*' water agencies reveal a blending of state and local rights and responsibilities, and thus expose the ambiguity surrounding decentralization of Sonora's water policies. Although the state has transferred rights and responsibilities for water services to the local governments, some of the *municipios* have not created their own agencies and thus continue to retain state administration of their services. This is due in large part to the exorbitant costs associated with running a service considered a basic necessity. Thus there are both state and local agencies controlling water services within Sonora's *municipios*. Additionally, there are a number of water agencies (both state and local) that have contracted out to private companies for administration of water services, further muddling the administrative situation of Sonoran municipal water services. Finally, despite the variety of entities working with water services in Sonora, the majority of resources come from the federal and state governments, and most policy and decision-making is done at the state level. Thus, within Sonora there has been some deconcentration, some delegation, and some privatization, even at the local level.

In contrast to Sonora, Baja California's *municipios* have limited capacities for water services. Baja California vests responsibility for water management and

administration in the state-run CESPs' and grants no responsibilities to *municipios*. This gives the *municipios* few reasons to put resources into the development of capacity for decentralization of water policies. Thus at the local level, Sonora has progressed further with decentralization of water policy than has Baja California.

Looking at water agencies and resources in these two states shows a lack of legislation for both states. Although Sonora and Baja California have state water legislation, they lack local level legislation. Additionally, financial resources, which are clearly a strong factor in the states and local government's capacity for action, show continuing domination of federal water agencies, particularly in the allocation of finances for water services. In both Sonora and Baja California, the CNA continues to arbitrarily distribute the federal resources because they represent a means for the federal government to control the sub-national agencies.

Following this lead, Sonora's state government controls its municipalities through resources, which they pass down the line. Even federal resources allocated to the local governments go through state ministries, leaving Sonora's *municipios* to the mercy of the state. In Baja California the state agencies do not even suggest transference of control, instead they administer the deconcentrated agencies that manage water services. This has left all *municipios* in Baja California, and more than a few in Sonora, fiscally dependent on federal and state financing, which sharply restricts their ability to invest in water systems and limits the extent of their decentralization. Continued subordination of local governments in these states indicates that economic and political decentralization, although legally sanctioned, still has a long way to go. See Table 7.2 for a comparison of capacity for decentralization of water policy in Sonora and Baja California.

Table 7.2: Capacity for Water Decentralization in Sonora and Baja California

| | Sonora | Baja California |
|---|--|---|
| Enabling Environment (formal frameworks) | <p>1992 State Water Law</p> <ul style="list-style-type: none"> • Revised previous law to encompass new federal regulations • Transferred service responsibilities to <i>municipios</i> • Allow service contracts with private enterprises • Consistently emphasizes responsibilities of federal government <p>No <i>municipio</i> water legislation</p> <ul style="list-style-type: none"> • Minimal reference to water quality within <i>municipio</i> environmental <i>reglamentos</i> | <p>1969, 1979 Legislation for water services</p> <ul style="list-style-type: none"> • Have not written a new Water Law to encompass 1992 changes to federal water regulations • Did write an annex to allow transference of some funds from CNA to the state • State government and its local commissions control water services <p>No <i>municipio</i> water legislation</p> <ul style="list-style-type: none"> • Minimal reference to water quality within <i>municipio</i> environmental <i>reglamentos</i> |
| Human Development and Institutional Capacity | <p>COAPES</p> <ul style="list-style-type: none"> • Responsible for operations and maintenance • Limited decision-making responsibilities • Continued CNA influence of budget and operations • Privatized fee collection and client relations • Line items for water services in budget • Adequate budget, dubious distribution of resources • Lack skilled personnel • Token citizens' council: appointed members, no real power <p><i>Organismos Operadores</i></p> <ul style="list-style-type: none"> • 60% major <i>municipios</i>' run by <i>municipios</i>; 40% still under state administration • Minimal contracts with private enterprises • No line items in budget for water services • Reliance on state and federal funding • Little to no public participation and input | <p>CESP's</p> <ul style="list-style-type: none"> • State agency in <i>municipios</i> responsible for water service management • Limited decision-making responsibilities • Strong traditional interests affect management practices • No line items for water services in budget • Adequate resources, but questionable allocation • Adequate personnel • Access to technological resources, vehicles <p><i>Municipios</i></p> <ul style="list-style-type: none"> • Minimal role; water agencies managed by state |

Policy implications of this include that it is unlikely to see major changes to water policy in the future. Because water is considered a public necessity, and it is essential for economic power within Mexico's northern region, the federal government appears to be set on maintaining a stronghold on water policies. Likewise, smaller, local governments are not likely to want to responsibilities of water management, particularly when their capabilities are already stretched.

Environmental Polices and Water Policies Compared

This comparison of decentralization initiatives for environmental and water policies within Sonora and Baja California not only reveals some relevant environmental and water policy distinctions between the two states, but also reveals interesting differences in the deployment of policies between the two issue areas. It is certainly evident, for example, that governments have written and promulgated more environmental legislation than water policy legislation. Most notable, more local *reglamentos* have been written for environmental protection than for water management. Likewise, all levels of government, although not every (local) government, have agencies to deal specifically with environmental issues. Concerning water policies, it is much more common for local governments to rely on federal and state agencies, as evidenced by Baja California where there are no local level agencies. Finally, the budgetary data shows funding at all levels of government that is specifically designated for environmental concerns. This is not as clear for water issues, where funding is more frequently rolled into budgets for general services and is thus not always set out as line items, although where water services are listed they appear to receive greater amounts of

funding than does environmental protection. Furthermore, local level governments, when not controlling water services, do not include water services within their budgets.

This evidence suggests greater advancement in environmental decentralization, where all levels of government are more likely to have an enabling environment and human and institutional resources. This slower advancement of decentralization in water policies, in combination with greater fiscal resources for water services, suggests variation for policies involving human necessities.

Water policy is more closely scrutinized by federal and state levels of government than are many other policies, including environmental policies. The reasons behind this call attention to the importance of water within northern Mexico, emphasizing not only that water is a basic need, but also the fact that water allocation has a political basis in the provision of infrastructure and patronage in states and *municipios*. Federal officials and PRI candidates understood that water was vital to the national development policy and related to politics of growth and industrialization. Because of this, water policy substantially predates environmental policy and the federal government and the PRI have historically dominated it. The federal government and PRI recognized the power that comes with the provision of basic benefits such as potable water and sewage—publics are grateful of politicians who provide these services, and thus are likely to vote for them. Because of this, those within the federal government are not likely to willingly pass responsibility, and thus power through patronage, to sub-national levels of government—particularly if those sub-national governments are not from their same political party.

As an extension of this, it is important to note that water policy is a distributive policy while environmental policy is a regulatory policy. For this reason, water is viewed

as a different policy area than environmental policy, despite the interconnections between the two. The superimposition of water quality requirements as an extension of public health and environmental concerns means that in achieving environmental goals in the water sector, SEMARNAT has had to contend with political and administrative practices and federally dominated policies that have been decentralizing since the 1990s, but that still represent policy practices embedded in centralism and with centralized fiscal domination of infrastructure development and finance. These factors combine to create the variation in programs, policies, and government reactions to water and general environmental policies. They also create the variation in the process of decentralization for environmental and water policies.

The existence of these differences has important implications. First, it suggests that decentralization policies are tailored to the issue area. The Mexican government has clearly recognized the need to distinguish between basic necessities and policies that do not as directly affect human life, or, more cynically, policies concerning politically powerful issues and those that are less politically pivotal. Second, it suggests that any single yardstick for decentralization is apt to be misleading. Decentralization indicators and programs appropriate for one issue area may not capture social and institutional changes in other issue areas or regions. This is particularly true when addressing regulative and distributive policies. For example, water is a distributive policy, thus following a framework for decentralization based on environmental policies is not likely to work. With water policies it is necessary for the government to address how to get safe drinking water to the public. With environmental policies the development and implementation process is more likely to deal with keeping people from doing something

(polluting, cutting plants, etc.) rather than providing a service. In addition, water policy cannot be shelved in order to address other concerns while policies concerning issues such as environmental protection can be delayed while governments focus on other, more vital concerns. Thus, determination of what constitutes successful programs and progress towards decentralization needs to consider different indicators for types of policies.

Other Influences on Environmental Policy Decentralization

Aside from the authorizing statutes, implementing agencies at varying levels of government and their resources, several other factors appear to play a role in the process of environmental decentralization for the states of Sonora and Baja California. These include the character of the political parties governing the state, international influences, and public participation.

Political aspects

Looking first at political parties, Sonora and Baja California have distinct histories. In Sonora, the PRI has maintained much control, although there has been some minimal influence from opposition parties within the state government, and there is some *alternancia* at the local level of government. Furthermore, although the relationship between opposition governance and efforts to promote decentralization is by no means clear-cut in Sonora, opposition governance does seem to modestly favor decentralization. For example, when the PRD controlled chairmanship of the Legislature's Ecology Commission there was greater advancement in decentralizing and expanding the state's environmental policies. And in the *municipios* that have experienced *alternancia*, there

appears to have been a greater emphasis on developing environmental policies so as to take control of management responsibilities. However, in the end because the PRI has been so powerful in Sonora, for so long, policies, mentalities, and thus to a large degree the failure to transfer responsibilities and resources, is ingrained.

In contrast to Sonora, the state of Baja California was the first state to successfully elect an opposition governor, and has seen both PRI and PAN leaders in most state and local positions. Due to this competition between the parties, Baja California's governments are generally considered to have more transparency, allowing people to know the state's aims and goals, and to be more responsive and respectful of dissenters, at least in the manner it responds to complaints and attempts to explain the reasons surrounding them, than states such as Sonora that has not experience the same level of competition. Furthermore, within Baja California, the shift from PRI to PAN control of the governor's office was the beginning of an increase in decentralization through development of new policies that include greater transference of responsibilities to local level governments in addition to transference of some resources. Moreover, it is possible to conclude that opposition government has created greater separation between government and the party in power, revitalized the local level governments, and reinforcement of municipal autonomy with both political and economical resources. However, even with these advantages there are problems with decentralization within Baja California. Political factionalism created by the increased competition within political issues in Baja California, is drawing out the complexities of both environmental and water politics, making it more difficult to decentralize but at the same time making the decentralized policies more widely accepted and in that respect stronger. Thus within

the states of Sonora and Baja California, there is reason to suggest that opposition parties and *alternancia* affect decentralization. Where there has been *alternancia* and where opposition governments prevail in state and local governance, there is likely to be greater progress toward decentralization.

International influence/border influence

A second factor that affects decentralization is the influence of international elements. Within Sonora and Baja California, border infrastructure projects, such as those made possible by the BECC and Border XXI, have helped governments within the border zone achieve desired environmental and water service goals. In particular these international projects have focused on water service and water infrastructure and thus they have created greater capacity for water services and water decentralization.

These programs also attempt to improve the conditions for decentralization, in general, in a number of ways. First the programs put forth support for decentralization via fiscal resources. The development of programs includes a call for greater involvement of sub-national levels of government along with greater public participation. BECC projects must address this call in order to qualify for funding from NADBank. Similar conditions hold true for other international programs. Second, these programs and similar border influences have also helped improve institutional capacities through access to computers and related technology for all levels of government. This access comes through both equipping Mexican governments with technological resources and supplying access to technology owned by others. Overall it allows not only improves government efficiency and prepares sub-national governments to deal with greater

responsibilities, but it also increases availability of information, which informs both governments and the public about policy concerns. This also ultimately creates an environment friendly to greater public participation. Unfortunately for Sonora, eligibility for both the fiscal and technological resources is contingent upon location with the border zone. The majority of *municipios* are not located within the border zone and thus do not directly benefit from either of these resources. Conversely, all of Baja California's *municipios* fall at least partially within the border zone and are thus eligible to receive this international support. Because of this, Baja California benefits more than does Sonora from these international influences. However, there is one more benefit of international influences from which governments in both states benefit. The mere existence of these international influences within Sonora and Baja California is helping the process of decentralization, teaching by example. Although far from perfect, these programs levels are working for greater inclusion and as such are inspiring sub-national governments and the public to demand greater involvement in government policies.

Despite the benefits to capacity building for decentralization of environmental and water policies that Mexico's northern border states and *municipios* receive, not everything concerning the international programs is positive for decentralization. For example, moving from the overarching program level to the workgroup level within Border XXI reveals that many of the specific initiatives are heavily dominated by federal agencies and include insufficient effort to engage state and *municipio* governments directly within these projects. There are insufficient monitoring of the initiatives that aim to build stronger program linkages to the non-federal governments. In a similar fashion, the BECC has no means of insuring that public participation will continue in the project

implementation and operations phase and many *municipios* lack technical capabilities and fiscal capacity to take advantage of NADBank's market rate financing. Overall the goals for decentralization and capacity building exist within these programs but the implementation of these goals is rather unsystematic and episodic.

Finally, fiscal federalism in Mexico has not advanced such that Mexican states and *municipios* can really implement much of the decentralized policy authority that the international influences attempt to support, particularly with respect to environmental matters. Ultimately it is necessary to focus on smaller advances. The fact that border area states and *municipios* now participate directly or indirectly in BECC's policy development processes, for instance, enables them to leverage resources and become more familiar with capacity building procedures, including the design and implementation of citizen empowerment and public participation measures. Furthermore, the international entities have drawn attention to the sub-national governments and their deficiencies, thus, although the deficiencies still exist, their presence is apparent to all, making it harder to feign ignorance. Overall experiences with international entities are thus benefiting both Sonora and Baja California, along with Mexico as a whole.

Public participation

A third and final factor that influences decentralization within Mexico's border states is public participation. The proliferation of seemingly small free spaces within civil society has helped to weaken centralized rule within Sonora and Baja California. The existence and activity of NGOs in both of these states has made slow yet steady progress over the past decade, contributing to the advancement of environmental and

water policy decentralization. In addition, there are calls for increased public participation within both the state and local level governments—these requirements are now written into state and local environmental and water legislation in both states. These calls for public participation have increased citizens' awareness and feelings of efficacy for environmental and water issues, creating a desire for greater influence, which unquestionably benefits and is reinforced by the decentralization measures. Possibly more important, public participation is playing a vital role in identifying the weaknesses of the current system and identifying priorities for needed statutory reforms.

Despite this advancement in and the benefits from public participation, there are still obstacles to effective, widespread public participation. For example, in Sonora federal and state government officials reduce participation at public meetings with last-minute date and location changes and by bussing in non-local public supporters to outnumber concerned citizens. Likewise, it has been reported that although NGOs and community groups have limited access to government officials in Sonora, the elites are accommodated. These same problems appear to be less evident in Baja California, in part due to the urban nature of the *municipios* and thus the ability for groups to pull together larger numbers and make a greater impression. However, in Baja California there are complaints of limited access to information and ambiguous procedures for accessing data, both of which limit the affect public participation can have on issues areas. Overall, institutional and societal practices and customs remain substantial obstacles to increasing effective public participation.

Each of these factors, political parties, international influence, and public participation, influence decentralization within Mexico, although more indirectly than do

the creation of an enabling environment, and human development and institutional capacity. However, an overview of these factors and their affects has added to the larger picture of Mexican decentralization, including environmental and water decentralization. Furthermore, they allow for a more comprehensive assessment of Mexico's obstacles to decentralization.

Mexico's Environmental and Water Policy Decentralization

An important observation supported by this research is that Mexico's environmental and water decentralization initiatives, now more than a decade old, have made limited progress beyond the federal level. Deconcentration rather than delegation or devolution is still the main engine of policy reform, although there is greater evidence of delegation particularly at the local level, in environmental policies than in water policies. Overall, progress in the process of decentralization has occurred for both environmental and water policies, however it has been protracted. The reasons behind this protracted growth are worthy of review.

Mexico is addressing the issue of environmental decentralization. Within a number of environmental sectors, Mexico's federal and sub-federal governments are recognizing the importance of involving a more diverse group of governmental officials, in addition to citizens, for development of public policy. Furthermore, Mexico is modifying its legislation to reflect a desire for greater progress in decentralization. Yet, despite reforms within legislation, the powers of state and local governments remain limited—both formally and informally. For example, neither the state nor the local governments are permitted to adopt regulations or technical norms more stringent than

those adopted by the federal government. Additionally, the intergovernmental management is ambiguous in many areas including the application of governmental powers. Also, the fiscal and administrative capacities of the states and especially the *municipios* remain limited due to fiscal practices and economic conditions. These reveal that the federal government maintains control through a number of means. By giving up minimal pieces of decentralization—such as allowing state and local governments to write their own legislation—the federal government appears to be moving toward decentralization, while in reality they are maintaining control through means such as the budget. The positive aspect to this is that there is movement of some type toward greater decentralization. Thus, changes are unfolding and adding to a climate of political transition and more competitive electoral politics at all levels of government. This has focused greater attention on the control of the federal government, the deficiencies of state and local administrations, and the need to further reforms, not only legally but also in practice.

Barriers to Decentralization

One impediment to decentralization is found in the development of environmental legislation. Concerns with legislation include the fact that most state environmental and water laws do not clearly specify all responsibilities of states and *municipios*, sometimes resulting in overlapping functions or inaction at all levels. Additionally, those who write environmental legislation tend to focus on the technical and economic dimensions of these issues, and are less interested or solicitous of the social or political aspects. For example, with environmental legislation, politicians frequently have failed to include

academics or NGOs in developing policies. This has created legislation that does not look at the societal or cultural issues that are tied into environmental and water issues. Thus, environmental policies are generally fashioned from the engineering and economic perspective, leading to the misperception that there is one way to solve problems—generally a method that includes technological, “end of pipe” solutions and ignores changes to what is causing many of the problems. Thus, although the existence of legislation is considered beneficial and a step forward, particularly by the NGOs and local officials, the idea that there are specific solutions to large problems reveals the lack of inclusive policy-making.

Second, although a series of decentralization “enabling reforms” have opened the way to the assumption and execution of substantial new responsibilities by state and municipal governments, there remain certain institutional and functional barriers. Among other issues, problems surrounding tax collection, and thus revenue-generation, and lack of accountability and experience that comes with re-election, obstruct the furthering of decentralization. Additionally, decentralization initiatives with a stated agenda of devolution often are merely deconcentrated. In other words, many federal agencies simply localize the center by creating agencies, mechanisms and/or programs in various *municipios* or in a manner that provides a direct link between local actors and the federal government. This suggests that the large, federal, centrally controlled bureaucracy has resisted institutional change and related power sharing. Federal agencies have held the vast majority of political power, authority and responsibility for administering resources and infrastructure for decades. These agencies are very slow to alter their operational patterns, even in light of federal and state legislation mandating these changes. Changing

this administrative culture of centralization is one of Mexico's greatest political challenges.

A third barrier to Mexico's progress in decentralization is Mexico's lack of resources. This lack of resources is particularly acute within local governments where not only the lack of fiscal resources, but also a dearth of resources such as technology and expertise created administrations that are mired down and outmoded. This is particularly true for environmental policies, many of which require a good deal of enforcement and an orientation to public participation that local communities either can not afford or have little experience providing. These deficiencies lessen the empowerment and capacity of *municipio* governments. This is not to say that Mexico does not have technology or expertise, but it is difficult for state and local governments to afford and maintain updated resources. As a part of this, it is not uncommon for Mexican governments to be trained and/or to borrow machinery and technology from international sources, particularly the US. Furthermore, although it is assured that there are people in Mexico who have advanced skills and technological expertise, frequently these citizens are located within Mexico City, leaving peripheral states (such as the northern border) to rely on the generosity of the capital city and/or federal government, or to attain US experts causing questions around if Mexico is expanding its capabilities and what influences the US has on Mexico. Ultimately, decentralization can be effective only when agencies and actors at the regional and local levels have the capacities to effectively perform the planning, decision-making, and management functions that are formally granted to them. In Mexico, the efforts to transfer planning and management functions to local government have not been matched with those for strengthening their administrative capabilities.

A fourth obstacle is the governmental structure within Mexico as a whole. Specifically, Mexico's sexennial (federal and state)/ triennial (local) systems, no-re-election, and lack of professional civil service cause a lack of continuity due to the frequent turn-over of all types of government employees. This lack of continuity, which is particularly apparent at the local level, reduces the likelihood of a coherent follow-through from legislation creation to implementation. With changes in administrations come changes in priorities. Furthermore, lack of continuity makes it difficult to address long-term projects or build inter-governmental relationships, a necessary element for effective, decentralized policies. An added aspect to this obstacle is the fact that patronage intrudes into administrations and civil service. As noted in both Sonora and Baja California, officials in numerous government agencies, including environmental agencies, are placed due to politics rather than expertise or abilities, creating another problem when attempting to strengthen the capacity of sub-national governments.

Finally, there is a real lack of strong local and even regional organizations that support environmental and water concerns and increasing public participation. The NGOs and civic groups are gaining strength, and as was evidenced, are beginning to make a difference for their communities. However the fact that they are still relatively new, particularly by Mexican standards, small, and with few resources lessens their influence.

In sum, the underdevelopment of sub-national legislation and governments, in addition to reluctance of political leaders at the center to relinquish power, have substantially inhibited efforts for greatly advancing decentralization, making real devolution rare. Thus in Mexico the primary thrust of environmental decentralization,

including water policy, is the deconcentration of federal administrative agencies from the capital to major regional centers. Virtually all decentralization achieve to date is geographic and administrative, not economic or political. Sub-national governments are given responsibility to manage services, but they are not given much decision-making or policy-making authority, or responsibility for their own finances.

Conclusions

Decentralization and Mexico

This study has explored similarities and differences in environmental and water policy within the Mexican states of Sonora and Baja California. By utilizing an interactive approach, exploring the complex interactions of social, political, and economic characteristics and how they influence the process of decentralization, it has been possible to gain a deeper understanding of the state-society relations and their influence on formal frameworks and implementation of decentralization within Mexico. Furthermore, comparing and contrasting these characteristics and the process of decentralization within Sonora and Baja California reveals more than the aforementioned conclusions about environmental and water policy decentralization. It is also possible to draw a number of conclusions about the general process of decentralization within Mexico, including comments on type and modes of decentralization. Finally, this study allows for suggestions of the future of Mexican decentralization, and what still remains to be explored.

To begin with, this study makes it possible to propose some general observations about the types of decentralization. As alluded to in the chapter discussing environmental

decentralization in Baja California, there appears to be a pattern to the order in which the types of decentralization are developed within Mexico. Decentralization appears to begin with a movement towards spatial decentralization. In the first phases of decentralization, the federal government moved federal agencies into regional centers. This move was described in environmental decentralization, yet occurred in many policy areas. Federal agencies now exist in many of Mexico's states. The second type of decentralization that appears is that of administrative decentralization, where the state government, and to some degree local governments, are charged with administrative responsibilities. Within the last decade there has been a change in presidential agendas, granting greater administrative responsibilities to sub-national governments. The states have taken this change as an opportunity to have greater influence on the policies that affect the citizens in their areas and thus to bring attention to regional variation. Political decentralization, granting states and local governments greater decision-making abilities, can be considered the third type of decentralization in the sequence. As seen in the study, policies concerning environmental protection appear to have progressed to this phase; however, sub-national governments have not yet been granted much responsibility for decision-making for water policies. This is particularly true for local level governments, where both Sonora and Baja California provide witness to this lack of advancement. Finally, what appears to be the last type of decentralization advanced in the sequence is economic decentralization. There is limited advancement in economic decentralization, but for the most part, this is the method the federal government utilized to maintain control of sub-national governments. Fiscal ties to the federal government remain and due to a lack to modification within institutional culture, these ties are unlikely to be

modified in the near future, thus the states and local governments are unlikely to be granted budgetary autonomy.

Discussion of the types of decentralization leads up to a discussion of the modes of decentralization; for example, it is necessary to have elements of spatial, administrative, political and economic decentralization in order to achieve devolution. Within Mexico all modes of decentralization appear, however, there is not a clear progression with modes of decentralization; instead we find fluctuation in the mode embraced for a policy. Decentralization within one policy area may be defined as delegation, where the federal government still maintains much control, yet there may also be elements of privatization within this same policy area. Water policy in Sonora is a great example of this—the federal government still controls the purse strings, keeping Sonora at delegation, yet the state and even some *municipios* have also moved forward with minimal privatization. All told this does not mean that Mexico is not moving forward in the process of decentralization, on the contrary, it is much more common to find delegation and even some devolution within Mexico today, than it was a mere decade ago. Additionally, there are also increasing circumstances of privatization, although these are still frequently controlled by the government and thus are not true, fully detached privatization. There are simply ebbs and flows to the process of decentralization within Mexico.

Finally it is important to note that these advancements in the process of decentralization within Mexico are due to advancements in capacity building. It is through greater access to legislation, increased resources, more experts, and greater levels of public participation, and thus public support, that the sub-national governments are

able to successfully advance their rights and realize their responsibilities, and thus progress with decentralization. Mexico as a whole is emphasizing greater decentralization in their legislation and is generating more local level legislation, which is necessary for increased decentralization. Although Mexico is slower at distributing resources—the federal government still has a tendency to control the economic aspects of policies—and thus have problems hiring or training skilled personnel and obtaining technological resources, there is also some advancement in these areas. Again, taking Sonora and Baja California as examples, this was evident in the descriptions of the development of environmental policies.

Overall, results of Mexico's decentralization have been mixed: there is a variety of types and modes of decentralization. However, this is to be expected, as decentralization is a process, and thus progresses in a sometimes slow, halting and hesitant pace. Furthermore, the increasing levels of decentralization have not been mirrored with impressive improvement in government efficiency or effectiveness. Yet this is not surprising. Decentralization is not a quick fix for administrative, political or economic problems. Its enactment does not automatically overcome shortages of skilled personnel or guarantee larger amounts of resources will be generated at the local level. However, it does encourage more groups, communities and levels of administration to undertake development activities. And Mexico is benefiting from just these things. There are more people (citizens, political party representatives, and government officials) involved in aspects of the policy process, and thus there is a growing feel of efficacy within Mexico.

Looking towards the future, successful implementation of decentralization policies requires some degree of coordination among national, regional, and local agencies. Planning, implementation, and evaluation procedures must be standardized so that agencies at different levels of government can coordinate common activities or those that have impacts on each other. Furthermore, to ensure that high-quality services are provided in a timely manner, functions must be allocated in a way that takes advantage of the strengths of agencies at different levels of government. Achieving this coordination and shifting responsibilities, in more than legal terms, will require a substantial change in Mexico: a change in tradition, in legislation and possibly even a constitutional reform.

While it is impossible to predict what will happen to government structures in years to come, it is clear that we are in the midst of a transition and realignment. Domestic and external actors are having a decisive impact on the performance of the governments within Mexico. The internationalization of the economy and related pressures to open up domestic economies and politics will continue to require fundamental restructuring of the private and public sectors. Nongovernmental organizations' agenda to highlight concerns, such as those surrounding environmental and water issues, will likely continue, increasing pressure the federal government to transfer greater responsibility to sub-national governments in an attempt to incorporate more local knowledge and greater public participation. All of these events, in addition to the increasing democratization within Mexico, will push to advance the process of decentralization within the country.

A push toward greater decentralization is likely to continue shaping environmental decentralization—as international elements continue to influence Mexican

governments and as environmental concerns continue to gain attention, there will be pressure to bring the local level into the decision-making process. However, the impacts will not stop with environmental policies, many other issues areas will also be affected—issues areas with great visibility to not only Mexico's northern border region, but the country as a whole.

Secondary Effects to Mexico's Political Process

The process of environmental decentralization within Mexico can be utilized to make a few conjectures about Mexico's political process in general. First, the process of decentralization within Mexico's northern border states has shown an increase in effectiveness of sub-national governments. This effectiveness is inspiring the public, generating a greater sense of efficacy and thus a greater appeal for politics within the country. This type of secondary effect from decentralization then adds to a second political issue for Mexico, democracy. As noted in the beginning of this work, although not directly related to democratization, the process of decentralization stresses the importance of inclusion of more people and more diverse groups of people. Thus, as the process of decentralization continues within Mexico, it is likely to strengthen the parallel movement of democratization within the country. In reality decentralization can take little credit for increases in democratization, but the public's perception of increased efficacy is likely to add support and momentum to the democracy movement.

Closing Thoughts on Decentralization within Mexico

Overall it is evident that there are both good and bad consequences from the movement toward greater decentralization within Mexico. The public is more involved in certain elements of policies, yet at the same time the process of decentralization is also used to make appearances of expanding capacity and decision-making abilities while in reality maintaining power and control in the hands of the elite. This lead to the question of if the good outweighs the bad or is the bad outweighs the good. In reality it is difficult to answer this question. As seen in the two case studies, Sonora and Baja California, there are areas where real progress is being made. This seems to be the case more frequently with environmental protection issues (policies that do not carry as many benefits for patronage), than for water issues (which are more likely to be used for political and patronage benefits). And it seems to be dependent upon the capacity of the sub-national governments. Ultimately it seems that as decentralization progresses, Mexico will determine in which areas it will most quickly advance, in which areas it will be a slow process, and in which areas it may be necessary to maintain federal control. However, what is sure is that with increasing levels of decentralization, and thus increasing participation of Mexicans, Mexicans will not easily give up their increasing influence in public policies.

As a final note, as globalization continues to push in on Mexico, it is likely all regions of the country will put greater attention on the process of decentralization. Future research on issues that inspire advancement of decentralization, in addition to an investigation of the process of decentralization for these issues areas will not only add to

the information discussed in this study, but will also will continue to further the understanding of the process of decentralization within Mexico.

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Appendix A:
Timeline of Key Environmental and Water Laws, Statutes and Policies

1917 The **Mexican Constitution of 1917** included the nationalization of water. However, loopholes allowed the government to transfer control of water resources to the private sector, when necessary.

Article 2 of the Mexican Constitution: The Nation is the original owner of land and water within the Mexican territory. All surface and groundwater, except that which is located only on one property, belongs to the Nation.

Article 25 of the Mexican Constitution: States that the Mexican State will support the activity of enterprise, subordinated to the public interest and provided productive resources and the environment are considered.

Article 27 of the Mexican Constitution: Declared that the public interest must be taken into consideration in the exploitation of natural resources.

Water is discussed in the fifth paragraph of **Article 27**. In the first portions of the fifth paragraph, distinctions are drawn between interior fresh-water resources and brackish or territorial maritime waters. Furthermore, fresh-water is classified into four categories: national surface water, national groundwater; privately owned water; and private water having a public utility. (Although it can be difficult to distinguish between privately and nationally owned water resources.) In addition, Article 27, subsection VII (third paragraph) contains a fifth water classification: water used by agricultural communities (ejidos).

Article 73 of the Mexican Constitution: Subsection XVII establishes that congress “may issue statutes over the use and profit from federal jurisdiction waters.” Relating to this Article 27, only the water classifications for surface and groundwater may be considered as national waters. As a result, when private water regulation is at issue, only the states can regulate private water use.

The second paragraph of subsection XXIX provides for congressional taxation over the profit and exploitation of natural resources discussed in the fourth and fifth paragraphs of Article 27. This provision confers exclusive power over the profits accruing to the use of exploitation of natural resources. However, according to Cossio Dias (1995, 494) there is an apparent discrepancy between the term “natural resources” in Article 73 and the term “national water” used in Article 27. The problem lies in the fact that if national waters are included within the meaning of natural resources, then the Federal Congress, rather than the states, has the sole power to tax national waters (and possibly privately owned water because all water falls within the definition of natural resources). Furthermore, Cossio Dias notes that there are no court rulings concerning this matter.

- 1926 **Ley Federal de Aguas (Federal Water Law):** pushed through Congress by President Elias Calles. The law focused on irrigation issues.
- 1934-1940 (President Lázaro Cárdenas’ term): a turning point for conservation in Mexico. Issues addressed included forest policy and the designation of most of the country’s national parks (about 40 altogether).
- 1945 The fifth paragraph of **Article 27 of the Mexican Constitution** was amended in order to establish the principal characteristics of what constitutes groundwater. It also states that groundwater that naturally reaches the surface of the land cannot be privately appropriated unless by permission of the Federal Executive, and that the private right to groundwater artificially discovered is a qualified right because the extraction of groundwater can be regulated or prohibited, if needed, in order to promote the public interest.
- 1946 Creation of the **Secretaria de Recursos Hidraulicos (Ministry of Water Resources.)**

Up through 1970 Mexican environmental legislation continued to be characterized by the partial and piecemeal protection of the environment through sector-specific legal ordinances, such as the Water, Fishing, Forestry, and Hunting Laws.

- 1971 **Federal Law for the Preservation and Control of Pollution:** Aimed toward public health concerns. Three sets of regulations were implemented to support it: ordinances that prevent and control atmospheric pollution caused by dust and smoke, statutes governing water pollution, and regulations that control and prevent pollution of the sea.
- 1972 **Federal Water Law:** Sets out broad objectives for the development and implementation of plans and policies for water resource management. States power of the federal executive to limit users rights through regulation of water use. Establishes watershed councils as coordination and agreement units of federal, state, and municipal authorities, as well as water users and stakeholders.

- 1975 **National Water Plan:** was prepared by the National Water Plan Commission to organize and encourage the development of policies for the social and economic development of Mexico's water resources. The groups who prepared the plan were subsequently formalized as the Mexican Institute for Water Technology (IMTA).
- 1976-1977 President Lopez Portillo combined the Secretaria de Agricultura (Ministry of Agriculture) with the Secretaria de Recursos Hidraulicos (Ministry of Hydraulic Resources). The new agency is called the **Secretaria de Agricultura y Recursos Hidraulicos (SARH) (the Ministry of Agriculture and Water Resources)**.
- Under SARH all water-related activities were relegated to a Sub-secretariat for Hydraulic Infrastructure.
- 1981 National Water Plan of 1975 is updated.
- 1982 **Ley de Protección Ambiental (Federal Environmental Protection Law):** Included provisions for conservation at the ecosystem level and established a new legal framework for the protection of flora, fauna, soil, and water. Developed guidelines for production of environmental impact statements.
- 1983 **La Paz Agreement,** the U.S.-Mexico Border Environment Cooperation Agreement signed. Provides an institutional framework for the articulation of bilateral public concerns about the environment and negotiation and resolution agreements dealing with these problems.
- Ley de Planeación**
- 1984 **Ley General de Salud (General Health Law):** establishes federal and state responsibility for general health services, including a section on "Environmental Effects on Health"
- 1986 **Ley Federal del Mar (National Law of the Sea)**
- 1987 Mexico's constitution was amended to give Congress new powers, including the power to enact legislation designed to support the participation of federal, state, and local authorities in environmental policy.
- 1988 **Ley General del Equilibrio Ecológico y las Protección al Ambiente (LGEEPA) (General Law on Ecological Equilibrium and Environmental Protection):** enhanced emphasis on ecological and environmental preservation instead of the traditional focus on human health and sanitation.

- 1989 President Salinas de Gortari creates the **Comision Nacional del Agua (CNA) (National Water Commission)**, as an “autonomous agency” attached to SARH. The CNA was formed to be the sole federal authority in Mexico dealing with water problems. Given a stronger regulatory role than previous agencies.
- 1990 The Salinas administration announces a new water policy based on three tenets: construction of large water works, based on public and private funding; maintenance of authority and control over water which is a national resources, according to the Mexican Constitution; decentralization of water services through stronger users’ associations and water utilities.
- 1992 **Ley de Aguas Nacionales (LAN) (National Water Law)**: Replaced the Federal Water Law of 1972. Sets out broad objectives for development and implementation of plans and policies for water resources management and fosters greater involvement of private sector in water industry. Regulates and encourages private investment in water infrastructure and regulates contracting schemes for potable water and sanitation services. Assigned responsibility for implementing the law to the CNA. Gives special attention to aspects of water quality in order to protect human health and preserve aquatic systems. Requires creation of River Basin Councils as instruments of institutional coordination to bring together users and the civil society, and to regulate attention to water issues in each basin.

Law on Measurement and Standardization: restructured the procedure by which technical standards are formulated and issues. The law requires that all standards be called “normas oficiales mexicanas” and establishes a common format that agencies must follow in designing standards.

Ley de Pesca (Federal Fisheries Law)

Ley Forestal (National Forestry Law) (modified in 1997, 2002)

Ley Minera (National Mining Law)

Ley Federal sobre Metrología y Normalización

- 1993 **Ley General de Asentamientos Humanos (General Law on Human Settlements)**: establishes the basic framework for planning and regulating human settlement. Establishes preservation of ecological balance and environmental protection in population centers.

North American Free Trade Agreement (NAFTA) and North American Agreement on Environment Cooperation, (environment side agreement), enacted. Parties to agreement are required to effectively enforce environmental laws and allow for increased public participation concerning environmental issues/policies. Established a Commission on Environmental Cooperation.

- 1994 Additional regulations added to the LAN
- President Ernesto Zedillo removes CNA from SARH and places it in **Secretaría de Medio Ambiente, Recursos Naturales y Pesca (SEMARNAP)** (**Secretariat of Environment, Natural Resources and Fisheries**). Its importance may have been de-emphasized through this move.
- Ley de Adquisiciones y Obras Publicas (Law of Acquisitions and Public Works):** establishes guidelines for projects carried out by Federal government. Includes a requirement that governments consider the effects the projects will have on the environment.
- 1996 Amendment to LGEEPA creating specific tools to promote cleaner industrial processes, improve guarantees of legality and juridical transparency, limit the discretionary authority of administrative officials, and introduce the right to environmental information. Also empowered the executive branch to issue “Decrees of Environmental Restoration” –in cases of severe degradation, a decree can be issued requiring that the land in question be restored to its previous state with a management plan.
- 1997 **Ley Federal de Derechos en Materia de Agua**
- Additional regulations added to the LAN
- 1998 Addition to **Article 4** of the Mexican Constitution: Now contains the words “all persons have the right to an environment appropriate for their development and well-being.”
- 2001 Amendments to LGEEPA
- Amendments to Ley Forestal

**Appendix B:
Non-governmental Organizations in Sonora**

| Location | Name | Major Issue(s) |
|---------------------|--|---|
| Sonora, Agua Prieta | Enlace Ecologico | Environment |
| Sonora, Nogales | Fundación de Apoyo Infantil | Conservation |
| Sonora, Guaymas | Programa Golfo de CA Conservación Internacional | Water Resources |
| Sonora, Guaymas | PRONATURA-Sonora | Conservation |
| Sonora, Hermosillo | Sierra de los Ajos, Buenos Aires y la Purica | Environment |
| Sonora, Nogales | Centro de Investigación y Estudios Ambientales | Environment |
| Sonora, Hermosillo | Red Fronteriza de Salud y Ambiente, A.C. | Environment; Conservation; Pollution/Hazardous Waste; Water Resources |
| Sonora, Hermosillo | Union de Usuarios | Environment; Pollution/Hazardous Waste |
| Sonora, Hermosillo | Centro Ecologico de Sonora | Conservation; Pollution/Hazardous Waste |
| Sonora, Hermosillo | Consciencia y Voluntad | Environment; Pollution/Hazardous Waste |
| Sonora, Naco | Frontera y Progreso A.C. | Environment |

Sources: Kourous 2001; Encuentro Fronterizo 2001

**Appendix C:
Non-governmental Organizations in Baja California**

| Location | Name | Major Issue(s) |
|---------------------------|--|---|
| Baja California, Tijuana | Grupo Ecologista Universitario | Environment; Conservation; Pollution/Hazardous Waste; Water Resources |
| Baja California, Tecate | Comite de Participacion y Defensa Ciudadana | Environment |
| Baja California, Rosarito | Asociacion Ecologia de Playas de Roarito, BC | Environment |
| Baja California, Tijuana | Proyecto Fronterizo de Educación Ambiental | Environment; Pollution/Hazardous Waste |
| Baja California, Ensenada | Pro Esteros | Conservation |
| Baja California, Mexicali | Comite Civico de Divulgación Ecologica | Environment |
| Baja California, Ensenada | Bosques de las Californias, A.C. | Conservation; Water Resource |
| Baja California, Mexicali | Centro Regional de Estudios Ambientales y Socioeconomico | Environment; Conservation; Pollution/Hazardous Waste; Water Resources |
| Baja California, Tijuana | Amas de Casas de Playas de Tijuana, A.C. | Environment; Conservation; Pollution/Hazardous Waste |
| Baja California, Tijuana | Comite Ciudadano Pro-Restauración del Cañón del Padre | Environment; Pollution/Hazardous Waste |
| Baja California, Tijuana | Casa de la Mujer del Grupo Factor X | Environment |
| Baja California, Mexicali | International Sonoran Desert Alliance | Environment; Water Resources |
| Baja California, Tijuana | ECO-SOL; Educacion y Cultura Ecologica | Environment |
| Baja California, Tijuana | Grupo Ecologista "Gaviotas" | Environment |
| Baja California, Tijuana | Asociación de Ayuda Mutua Sin Fronteras (ADAM) | Environment |
| Baja California, Tijuana | Movimiento Ecologista de Baja California (MEBAC) | Environment |
| Baja California, Tijuana | Aire Sano, A.C. | Environment |
| Baja California, Tijuana | Informa, A.C. | Environment |
| Baja California, Tijuana | Environmental Health Coalition | Health and environment |
| Baja California, Tijuana | Fundacion Esperanza de Mexico | Environment |
| Baja California, Tijuana | Fronteras Unidas Pro-Salud | Health and Environment |
| Baja California, Tecate | Fundación La Puerta, A.C. | Environment |
| Baja California, Tijuana | Aldea Ecológica/Growing Green Fund | Environment |

Sources: Kourous 2001; Encuentro Fronterizo 2001