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CLAREMONT McKENNA COLLEGE
POLICY ANALYSIS OF RURAL DEVELOPMENT STRATEGY IN MEXICO:
CREATION AND MANAGEMENT OF INFRASTRUCTURE SYSTEMS

SUBMITTED TO
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AND
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CHAPTER I

INTRODUCTION

This thesis explores the public policies, economic conditions, and social climates that affect rural development strategies in Mexico, specifically within the context of economically viable and ecologically sustainable physical and non-physical productive and social infrastructure systems. Lessons gleaned from the successes and failures of various Mexican public programs offer potential solutions to future problems that Mexico and other developing countries face in the modern age of globalization and environmental concerns.

Many citizens of rural Mexico live without basic services such as potable and irrigation water, electricity, food security, health care, etc. Rural Mexicans also suffer from high poverty rates and weak political representation that exacerbate their problems. Ideally, the Mexican government can improve their standards of living and increase social welfare by implementing policies that promote practices that are economically sustainable while environmentally responsible.

Rural Mexico is often characterized as extremely underdeveloped and harbors millions of people considered in poverty, some in “extreme poverty” as classified by the United Nations. Lack of physical infrastructure causes rural economic growth to stagnate and creates a severely negative impact on quality of life in rural areas. Many areas are

without paved roads, solid floors in homes, lack electricity, potable water, irrigation, schools, hospitals, and other physical infrastructure services.

The result of rural underdevelopment is staggeringly negative. Poor economic development, coupled with inequitable public resource distribution has resulted in high levels of marginalization in many rural areas (especially southern regions), and is characterized by high rural poverty rates and wealth polarization. In 2008, the percentage of rural people living below the national poverty line was 61%, and the GINI Index rating (a measure of wealth distribution from 0 to 100- 0 as perfectly distributed) for Mexico was 52, one of the most inequitable wealth distributions in the world.¹ A lack of productive infrastructure services has severely limited the ability of rural areas to grow economically, a key component in improving quality of life. Even if rural areas were able to develop productive infrastructure services, a lack of market access due to poor roads and other factors further causes economic stagnation.

Extreme marginalization has also caused a historical lack of social services such as health care and education, other important factors that contribute to quality of life levels. Without these services, deepening of human capital does not occur, which is important in the creation of long-term growth.

Due to the extreme polarization between the wealthy who are often located in urban areas, and the rural poor, national statistics fail to reflect the poor conditions of rural areas (sometimes extremely poor). Mexico's economy is one of the largest in the world, and enjoys many amenities at the same level as some of the most developed

¹ World Bank, "Databank for Mexico," The World Bank Group, <http://data.worldbank.org/country/mexico> (accessed January 30, 2011)

nations. Yet when coupled with the story of marginalization and inequity, the numbers tell a different story; wealth and benefit distribution is so unequally distributed that the poor conditions in rural areas are offset by lush conditions enjoyed by the wealthy. In essence, Mexico is split along rural and urban lines. One Mexico is wealthy, profitable, and enjoy access to infrastructure services at the levels of developed nations, while the other Mexico is characterized by economic stagnation, low levels of infrastructure support, and a low quality of life level.

However, there have been significant improvements to rural infrastructure services in recent years. The current Mexican government sees sustainable rural development as an avenue for increased economic and social development, and there has been a plethora of new legislation, agencies, regulation, and programs designed to promote this goal. Past successes and failures can provide important information about how long-term changes to infrastructure and social policy can work in the current and future Mexican social, political, and economic framework. The government of Mexico sees the large rural population as an economic engine with great potential, because current trends in rural economies indicate that the industrial manufacturing sector can be competitive on a global level, and other sectors also have room to expand and create new revenue streams (such as tourism).

A history of unrepresentative and unresponsive government since the revolution in 1910 had caused a host of institutional problems. The policies of the Institutional Revolution Party (Partido Revolucionario Institucional or PRI) created numerous inequities and poor infrastructure planning and development, which led rural residents to remain in poverty for decades and create massive inefficiencies in management schemes.

A desire for more comprehensive and higher quality social services has shifted the political climate to one of increased democracy and willingness to undergo radical changes in policy and infrastructure. This shift, which began in the early 1990s and has continued through the present, has been characterized by neoliberalism and decentralization as development tools. Other goals within the current rural development strategy include long-term and sustainability considerations, and providing assistance to the most marginalized groups in Mexico.²

While these changes have in fact been radical, the success enjoyed by each reform has varied. Because many of the programs entailed significant changes to social norms in various contexts, not all were embraced or succeeded in the expected way. However, some reforms were successful within these social contexts. The Mexican government, in conjunction with organizations like the World Bank and the Inter-American Development Bank, has been continuously identifying problems associated with its new policies.³

An encouraging positive trend in current policy reform has been the increasing far-sightedness of policies and programs. The Mexican government has demonstrated a firm understanding of the benefits of developing programs with an increased time frame,

² Office of the President of the United States of Mexico, *Plan Nacional de Desarrollo*, 25-26, <http://pnd.calderon.presidencia.gob.mx/index.php?page=documentos-pdf> (accessed March 12, 2011),

³ Mexico and Colombia Country Management Unit, *Country Partnership Strategy Progress Report for the United Mexican States for the Period of FY08-FY10* (World Bank Group, 2010), in the World Bank Project Database, http://www-wds.worldbank.org/external/default/main?pagePK=64193027&piPK=64187937&theSitePK=523679&menuPK=64187510&searchMenuPK=64187283&theSitePK=523679&entityID=000334955_20100305015216&searchMenuPK=64187283&theSitePK=523679 (accessed March 10, 2010)

including improved sustainability, equitable distribution of benefits across generations, and the ability of policy to more appropriately address the issue.²

International involvement is a key aspect of rural development in Mexico, as organizations such as the World Bank provide aid to Mexico to finance certain development projects. These can range from those aimed at increasing social capital, to those that finance infrastructure projects.⁴ International support is almost always conditional on Mexico's compliance with the international groups' analysis of the problem, sustainability goals, social equity requirements, and the prevailing thought on development policy. For example, neoliberalism has been popular for the past two decades and international funding for many Mexican projects are contingent upon the enactment of neoliberal strategies such as decentralization of authority over resource allocation and pricing, and privatization of resource ownership (and the development of resource ownership rights markets).

Mexico is a primary focus of international groups for a number of reasons. First, Mexico is on the cusp of transition from a third world nation to a developed one. It is one of the richest countries in Latin America, and conditions are not nearly as severe as some of the poorest nations. There is a fairly high level of political, social, and economic stability, which means policy has a greater chance of being created in a analytic and responsible manner, and can be executed and enforced with reasonable effectiveness. Second, Mexico's geographical position also contributes to this attention. Proximity to

⁴ Mexico and Colombia Country Management Unit, *Country Partnership Strategy for the United Mexican States for the Period FY2008-FY2013* (World Bank Group, 2008), under "Mexico Country Profile"
<http://siteresources.worldbank.org/INTMEXICO/Resources/CPSMexicoFullTextEnglish.pdf> (accessed November 4, 2010)

the United States has led to trade agreements such as the North American Free Trade Agreement (NAFTA). Thus, Mexico has access to global markets, which is a key component to rural economic development within a global market environment. Third, Mexico's extremely under-developed rural areas, in conjunction with its willingness to reform rural development policies creates a "laboratory" of sorts, in which various development schemes can be implemented and subsequently assessed. Lessons learned from Mexico's experiences will lead to a greater understanding of the effectiveness of policy within certain political and social conditions. Subsequently, this can lead to improved policy in other developing countries facing similar conditions. Finally, Mexico is a representative of the developing world that is beginning to experience consumption (and pollution) growth. If Mexico can expand in an environmentally responsible manner, these lessons can also be translated across borders.

This thesis explores rural development within the historical, political, economic, and social conditions of Mexico. We find that there has been significant progress to improvements in rural conditions through the development of infrastructure systems, and that neoliberalism and decentralization are appropriate under these conditions in Mexico. However, we also find that flaws within the institutional structures lend themselves to ineffective and uncoordinated government actions, resulting in outcomes that are often in direct conflict to the tenants of neoliberalism and decentralization. Ultimately, these flaws must be addressed in order to fully achieve the goal of rural development through the creation of infrastructure systems designed to increase productivity and/or social support.

CHAPTER II

TRENDS

Trends in Rural Development Policy and the Political Economy

Mexican rural policy has undergone significant changes in the past ninety years with the most radical reform occurring between the early 1990s and the present. These recent changes can be characterized by two distinct periods that have guided rural policy over the course of the past few decades. Each period produced its own policy framework in which the goals, assumptions, market conditions, and a variety of other factors were unique.

The first period can be thought of in two parts; the first characterized by revolution, sustained economic growth and import substitution, and the second by economic downturn, liberalized trade, and a transformation of political philosophies. The first period as a whole was characterized by indecisive and inconsistent development strategies, misguided policies, and perverse outcomes. Ultimately, rural development policies were not conducive to efficiently productivity gains or increased social equity in rural Mexico.

Infrastructure installation patterns associated with rural development strategies were the cause of many of these problems. These infrastructure development problems had an ill effect on many rural economies, caused further marginalization of rural poor, resulted in little poverty alleviation, and failed to provide basic infrastructure services to the rural poor including potable water, sewage, electricity, road access, etc., and a host of

other severe problems.¹ It was not until the fall of El Partido Revolucionario Institucional (PRI, English: The Institutional Revolutionary Party), the Presidency and administration of Vicente Fox, and the shift toward economic liberalism and decentralization that significant and beneficial changes began to occur for rural Mexicans.

The second period began in the early 1990s and has continued to the present. In this period, a shift in the philosophy of physical infrastructure development in rural areas created a host of new programs and agencies to develop infrastructure that encourages the diversification and production increases in rural economies while simultaneously improving the quality of life for Mexico's large and mostly poor rural population. With these goals in mind, the government initiated infrastructure development in rural areas that previously had been neglected, and in non-traditional economic sectors such as small-scale manufacturing and agriculture, high-technology manufacturing, service industries, etc.²

Infrastructure that has been or is currently being developed and installed in the second period is of considerable interest because of new technical challenges (i.e., producing electricity for communities located far from a grid connection), as well as social, economic, and political challenges. The success of each infrastructure installation relies heavily on the degree in which it is tailored to meet the social, economic, and

¹ World Savvy Monitor, "History," World Savvy, under "Inside Mexico: Rural Life," http://worldsavvy.org/monitor/index.php?option=com_content&view=article&id=652&Itemid=1122 (accessed February 16, 2011)

² Russell Crandall, "Mexico's Domestic Economy: Policy Options and Choices," in *Mexico's Democracy at Work: Political and Economic Dynamics*, ed. Russell Crandall, Guadalupe Paz, and Riorden Roett (Boulder, CO: Lynne Rienner Publishers, 2004)

political requirements of not only rural people, but also Mexico as a whole by facilitating national economic growth and by creating new (or supplementing existing) services for urban areas.³

Period One: Patterns of Rural Marginalization Resulting From Inequitable Public Investment in Infrastructure Development (1910- Early 1990s)

This period is characterized by physical infrastructure development as dependent on favoritism by the Mexican government, both among industries and various stakeholders within each industry. Physical infrastructure development was focused primarily on improvements to agricultural infrastructure, including both direct infrastructure services (i.e., irrigation) and indirect services (i.e., roads that allow access to produce markets).⁴ In addition to agriculture, oil industry and low-technology manufacturing infrastructure underwent improvements and expansion, while other industries and infrastructure created to provide basic services to rural people experienced little growth

Rural policy in this period was largely shaped by Mexico's import substitution policy. The country tasted economic success in terms of the development of oil, manufacturing, agriculture, and other industries. Coupled with an isolationist economic/foreign policy, periods of sustained low inflation, and a successful national development plan modeled after the Soviet Union, Mexico enjoyed half a century of

³ Crandall

⁴ Mexico and Colombia Country Management Unit, *Country Partnership Strategy for the United Mexican States for the Period FY2008-FY2013* (World Bank Group, 2008), under "Mexico Country Profile"
<http://siteresources.worldbank.org/INTMEXICO/Resources/CPSMexicoFullTextEnglish.pdf> (accessed November 4, 2010)

sustained economic growth dubbed “The Mexican Miracle.” During this time, significant public capital resources were invested in infrastructure development for the most profitable of Mexican industries (especially oil). Economic and political structure during this time was not unlike many systems in various countries with low social equity; the wealthiest 0.2% of Mexicans owned a majority of Mexican territory after the Revolution. Additionally, this group owned a large majority of the most lucrative industries via big business interaction with the central government.⁵ Their wealth translated easily into political power, which perpetuated the classic “the rich get richer cycle” seen in many incidences across the globe.

The political power structure of this period encouraged investment in industries comprised of large firms owned by the rich. These large companies were centered in urban centers, and employed urban people or alternatively, as in the case of oil, the firms were located in small plots of rural land. These oil extraction points only increased the income of the rural people in the immediate area and did little to benefit the rural Mexican economy as a whole. Even these jobs did little to increase rural income in the immediate areas as labor supply was high and the firms were able to hire workers at a low cost. This problem of replaceability was a problem across many sectors of big business located in rural areas.

These investments increased national economic production and allowed Mexico to enjoy an average GDP growth rate of three to four percent annually. While there were complaints against the PRI for corruption, marginalization of various peoples, etc., this period of economic growth maintained a stable political environment and the PRI was

⁵ Crandall

able to carry out many questionable policies without the loss of significant political capital.⁶

While this was a time of prosperity for Mexico, average GDP growth rates do not adequately reflect the distribution of equity among its citizens. A majority of rural people and even some in urban centers remained in moderate to extreme poverty conditions without basic social services. These people were marginalized politically and economically in the most classic sense. Politically, they were unable to make significant impacts or elect leaders of their own because of physical barriers such as long distances to urban centers, which were and still are the seats of political power. Additionally, the PRI had tight control over the political arena due to corrupted practices, which created policies that ensured the PRI retained power and large political capital because of economic prosperity. These policies allowed for no outside influence to gain political standing, making it essentially impossible for marginalized groups to have any sort of influence in the political arena.⁷

Rural Mexicans during this period were marginalized economically just as much as they were politically. As discussed above, little opportunity existed for rural people to gain employment in the lucrative industries at the time. With the exception of the occasional oil well, the primary industrial sector present in rural areas was commercial agriculture. Because of the investments in irrigation infrastructure, agricultural techniques, etc., commercial farms were growing at a rapid pace and employing rural people as day laborers.

⁶ Ibid.

⁷ Ibid.

If one was lucky enough to live near a commercial farm (usually in the northern states) and gain employment, the surplus labor caused a phenomenon approximate to the “Iron-Wage Law”; wages decreased until just above the level of subsistence income plus the utility gained by rural workers to stay home and farm their own plots of land. It is widely recognized that the Iron-wage law has flaws; such as population (thus labor supply) increases initially, but then decreases (negative parabolic relationship) and employment is not perfectly fluid because employers want to keep workers that have already been trained, therefore will hang on to existing employees which has the effect of maintaining a wage above what Iron-wage Law predicts. However, in this case the Iron-wage Law is an appropriate approximation of the agricultural labor market in rural Mexico during this time period. In this period (and even today), Mexico did not enjoy such high wages to experience the phenomenon of population decrease⁸ (such as the case for the most wealthy states). Additionally, the amount of skill required to work on a commercial farm was minimal and laborers were easily replaceable.

Those who worked on commercial farms were unable to successfully lobby for higher wages, better working conditions, or more reasonable hours for many of the same reasons they were politically marginalized. Because the government favored the large firms, it did not make significant attempts to increase wages because the increased costs that would be incurred the big farms would be politically unpopular. At the time, economic success in terms of national GDP was a higher priority than social equity for the powerful central government. In almost every instance of labor disputes (if a member

⁸ World Bank, “Databank for Mexico,” The World Bank Group, <http://data.worldbank.org/country/mexico> (accessed January 30, 2011)

of the rural poor got an audience at the federal level, which was rare), the courts sided with the firms rather than the poor laborers. In fact, labor is still under regulated and somewhat disregarded in Mexico today.⁹

In light of these poor conditions for day laborers, it seems reasonable to inquire why more of these peasants didn't farm their own land. After all, the PRI re-established the ejido/communal land ownership system which essentially guaranteed not only land in which every rural person (man) could practice agriculture, but established community rules and institutions designed to promote high levels of social capital (in terms of community unity, common purpose, labor help from neighbors, etc.).

The answer to the above question is clear and familiar- the ejido owners ("owners" is used loosely- a more appropriate description is socially entitled shareholders in the land they are assigned) lacked the political and economic capital to successfully engage in any sort of high or even moderate income-level agricultural activity. Agricultural production on ejidos was essentially limited to subsistence levels. One of the greatest limitations ejido owners faced, that severely limited them in terms of economic success, was Mexico's poor definition of property rights at the time. Because property rights were so uncertain, the rural poor were obligated to stay close to their ejidos. If they attempted to leave for any extended period of time, another individual could make a claim to the land and had a fair chance at full legal entitlement if the dispute went to court. Additionally, poor or no access to paved roads made travel almost impossible. This

⁹ Secretariat of Labor and Social Provision, "Historia de la Dependencia," Government of the United Mexican States, http://www.stps.gob.mx/bp/secciones/conoce/quienes_somos/quienes_somos/historia_stps.htm (accessed December 2, 2010)

created little to no trade between rural communities, or even within communities that had low spatial densities. As most households within rural communities practiced agriculture, there was excess supply and little incentive to produce more than needed for subsistence.¹⁰

¹⁰ Secretariat of Agrarian Reform, “El Inicio de la Revolución,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/el-inicio-de-la-revolucion/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “El Plan de Ayala y los Zapatistas,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/el-plan-de-ayala-y-los-zapatistas/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “Proposiciones Villistas,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/proposiciones-villistas/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “La Propuesta de Carranza,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/la-propuesta-de-carranza/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “Un Reparto Escaso y Lento,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/un-reparto-escaso-y-lento/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “Infraestructura Agropecuaria,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/infraestructura-agropecuaria/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “Las Transformaciones del Cardenismo,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/las-transformaciones-del-cardenismo/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “Dificultades de la Colectivización,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/dificultades-de-la-colectivizacion/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “Una Nueva Estrategia,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/una-nueva-estrategia/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “Auge y Crisis Agropecuaria,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/auge-y-crisis-agropecuaria/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “Nuevas Demandas Campesinas,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/nuevas-demandas-campesinas/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “Efervescencia Agraria,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/efervescencia-agraria/> (accessed December 30, 2010); Secretariat of Agrarian Reform, “Los Límites del Reparto Agrario,” Government of the United Mexican States, <http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/los-limites-del-reparto-agrario/> (accessed December 13, 2010); Secretariat of Agrarian Reform, “1917: Reconocimiento a

Even if they were able to access markets for produce, ejido farmers did not have the appropriate technology to create excess product to cover the costs of exportation and could not compete with commercial farms which had access to heavy machinery, advanced agriculture techniques, irrigation systems, and other benefits of larger economies-of-scale operations. These firms were powerful politically and comprised an important PRI constituency. As a result, the federal government enacted policy that increased the profit margins of commercial farms. The government intervened in almost all facets of the agricultural business: commodity distribution channels, generous pricing support (remember, it was a time of isolationism so prices could be set artificially), subsidies for anything from water to fertilizer, and a number of other policies which created rents for the large agriculture firms.

Recently, the ejido system was dismantled and land use laws were standardized which has allowed greater mobility among rural people. Since this is a recent policy change, there still exists a very large number of people that live in rural areas, who until recently couldn't leave their communities. This ejido/ property rights phenomenon is widely considered to be the reason the percentage of the Mexican population living in rural areas is much higher compared to similar countries.

This spatial restriction played an important role in the socioeconomic development of rural Mexico. Many populations in Mexico were (and are) dispersed across great distances, allowing inhabitants little opportunity to travel, trade, learn, and a

la Propiedad Comunal,” Government of the United Mexican States,
<http://www.sra.gob.mx/sraweb/conoce-la-sra/historia/1917-reconocimiento-a-la-propiedad-comunal/> (accessed December 13, 2010)

host of other activities necessary to achieve any semblance of adequate living conditions.¹¹

Rural areas that were not occupied by commercial agriculture were viewed to be in a “pre-market” condition and worth little to the economic growth of Mexico. They were subsequently ignored as viable economic engines. Because of this “pre-market” status, rural economies weren’t taken seriously as compared to the dominant big-business economy, which enjoyed high profit margins.¹²

The combination of little political or social clout, lack of mobility, education, or market access was not uncommon among rural people. With little money or political influence, rural people across Mexico were unable to obtain basic social services. The percentage of rural communities that lacked essentials such as potable water, irrigation, health care (almost no physicians or clinics in rural Mexico), etc. was over 30% and communities that were without at least one of these services was over 95%.¹³

As per PRI’s import substitution economic strategy, the Mexican government placed heavy emphasis on the development of industries that would facilitate national self-reliance, and three industries stood out that were suited to fulfill this role in rural areas. First, agriculture was essential to maintain the food supply for the population. Second, the oil industry has always received strong governmental support because of the vastness of oil reserves in Mexico, and the high value of the resource. Both agriculture and oil are inherently rural endeavors, therefore were the focus of rural development

¹¹ Ibid.

¹² Crandall

¹³ Steven Topik, “The Revolution, the State, and Economic Development in Mexico,” *History Compass* 3, no. 1 (2005)

policy. Third, manufacturing was necessary to provide material goods to Mexican people, and although factories can be located in urban areas (as indeed some are), northern areas were the focus of most development in this industry, as the United States was a large consumer of Mexican manufactured goods. Factories in Northern Mexico produced textiles, auto-parts, and other low-technology products for domestic consumption, and export to the U.S. ¹⁴

Other industries not considered important to support the Mexican economy received little developmental benefits or improvements to infrastructure from the federal government. Additionally, infrastructure that provided services to rural people was not developed because this type of infrastructure did not fit into the PRI's model for economic growth. ¹⁵

Agriculture: Land Redistribution Failure as a Primary Cause for Poor Infrastructure Development for Small Agricultural Producers and Associated Inequitable Distribution of Development in Favor of Large Farms

Agriculture was the primary economic activity in rural areas for many years and development of the agrarian system was highly correlated with the overall development of rural areas, especially because of the lack of social development programs (and the infrastructure services they would provide) for rural areas. Inconsistent government practices, policies, and favoritism created a system in which common rural peasants were unable to increase agricultural production and thus incomes, which created

¹⁴ Crandall

¹⁵ Ibid.

developmental stagnation and lead to no investment in infrastructure tied to quality of life considerations, such as potable water, sewage, communications, roads, electricity, etc.¹⁶

Creation of Ejidos and the Early Agrarian System (1910-1935)

By the time of the Mexican Revolution, agriculture had a firm hold on rural economies due to the expansive debt peonage system that existed prior to 1910. *Haciendas* (large estates owned by the elite class that used peasant labor to cultivate the land) existed in many rural areas with arable land. Agriculture held significant cultural value among the populous rural peasantry because it was practiced across many generations not only in the *hacienda* period, but for thousands of years dating back to the Aztecs, who are the ancestors of modern Mexicans and some of the first people to practice agriculture in America. Agriculture was, and still is, by far the most defining and important economic activity of rural Mexico, as a large majority of the rural population engages in agricultural production. Thus, policies affecting the structure and development of Mexico's agrarian system had profound impacts on the livelihoods of the rural population, and rural development as a whole.¹⁷

In fact, agriculture was so deeply embedded in Mexico's economic and cultural identity that many of the significant political upheavals at the time of the revolution, and the following political and social turmoil, revolved around peasants' social, economic, political and productive rights in agrarian roles. Perhaps the most significant of these uprisings was that of the *Zapatista* movement, headed by Emiliano Zapata. The

¹⁶ Ibid.

¹⁷ The remainder of this section is based on reports from the Secretariat of Agrarian Reform, and articles by Crandall and Topik.

Zapatistas envisioned a new agricultural system that retained the economic, political, and cultural significance of rural agriculture while creating a more equitable distribution of land, production, and economic gain rights for rural people.

The *Zapatista* movement was immensely successful in that it brought the plight of the poor rural peasant to the national spotlight. It made government officials rethink not only the structure of Mexico's agricultural systems, but also the social status and rights of people in lower socio-economic classes. Thus in 1915, the Zapata Land Law was drafted by the *Zapatistas* which held that "the nation recognizes the traditional and historical rights of peoples, villages and communities of the Republic, to own and manage their lands held in common, and its suburbs, as they deem appropriate." (Zapata Land Law, Article 3) Additionally, the law mandated that the government take an active role in land redistribution from *haciendas* to common people, by charging the government with "the duty of creating small properties from all land in the country, which will be expropriated for public purposes, through means of proper compensation." (Zapata Land Law, Article 4) The law also made provisions for the establishment of government agencies to manage irrigation, rural credit, education, and agricultural research.

To show the nation that the government was sensitive to the struggles of the common citizen and the ideals of agrarian uprisings, President Venustiano Carranza enacted the Agrarian Law of 1915, which was almost identical to the Zapata Land Law. It created the National Agriculture Commission (CNA) and sub-offices in each state. The primary goal of the CNA, mandated by the Executive (Carranza), was to conduct the actions necessary to redistribute land through the creation of small communal plots of land called *ejidos* that were publicly owned and operated by local farmers called

ejidatarios. The success of the CNA in this capacity was extremely limited. Their failure to cohesively and consistently redistribute large plots of land created an agrarian system vastly different than envisioned by the *Zapatistas* and other poor agricultural workers and as mandated by the Agrarian Law. The creation of this perverse agrarian system shaped agricultural infrastructure development in rural areas in ways that would dictate rural development in the years to come.

A number of factors delayed and limited the CNA's attempts to redistribute land to *ejidatarios*. A major factor was the ongoing armed conflicts in Mexico's multisided civil war at the time. The Mexican military needed a large amount of food to support its combat efforts, and could not wait for the establishment of an *ejidal* system and all the bureaucratic processes the creation process entailed. Thus, many large-scale farms were kept intact and in operation well after the Agrarian Law went into effect and the CNA was established. Continued operation of large-scale farms set a precedent of poor adherence to laws designed to protect the productive rights of common rural people, and of reliance on large-scale farms to produce a majority of agricultural products.

Another factor that delayed the establishment of *ejidos* was the lack of financial and human resources available to the CNA for this purpose. The CNA was unable to develop an effective strategy for land redistribution due to a lack of policy experts committed to developing such a strategy. As a result, the CNA's land-redistribution strategy was inefficient, time-consuming, and inconsistent. This problem was further compounded by the same lack of resources; limited financing meant the CNA could only move as fast as their limited budget allowed, and a lack of human resources made it difficult for the CNA to quickly implement the poorly developed land-distribution

strategy due to an inability to process and gather information about cases, and check up on the status of established or semi-established *ejidos*.

Once peace was restored to Mexico, the CNA renewed its commitment to land redistribution. A small number of *ejidos* had been established during the first years of CNA operations (beginning in 1917) to test the bureaucratic system designed by the Agrarian Law and the CNA to appropriately allocate land and compensate citizens from whom the land was taken. Lessons learned from this experimental period were incorporated into the Ejido Act of 1920, which aimed to standardize the redistribution process. Additionally, the Farga Act of 1925 further augmented and attempted to effectuate the rights of common rural agrarian producers. Perhaps the most relevant statute of the Farga Act to infrastructure development was the provision that gave every village the right to petition the government to provide land and water for the people of the community if the area had a demonstrated lack of either to sufficiently support agricultural productive capacity.

One would think that government progress in the land distribution process would have accelerated rapidly after the passage of the Ejido and Farga acts, yet such was not the case. While there was acceleration in the amount of land redistributed, it was small and the establishment of communal lands was slow largely due to a shift in political sentiment toward the agrarian system characterized by the rise of the National Revolutionary Party to power (later the party changed its name to the Institutional Revolutionary Party). Establishment of the *ejidal*/communal land system was no longer viewed as the desired end result of land distribution, but merely a transitory state of land distribution that would eventually lead to private ownership of small parcels.

Over the following decade, *ejidos* retained this “transitory” status, which inhibited physical infrastructure development for communal lands, as the government was hesitant to invest the large capital required to create infrastructure tailored to service communal lands when its goal was to privatize land ownership. Additionally, irrigation and other agricultural infrastructure development on communal land was hampered by the mere fact that *ejidos* did not yet exist in many areas, due to the slow land redistribution process. By 1934, fourteen years after the passage of the Ejido Act and seventeen years after the CNA began redistributing land, *ejidos* accounted for only 7.6 million hectares or 6.7% of the total land owned by *haciendas* before the revolution. Additionally, only 23% of *ejidal* land was arable and only 11% of this area was irrigated.

Haciendas still owned a majority of arable land by 1934 and enjoyed protection from being dismantled from a multitude of government actors acting for personal gain without regard to the numerous land distribution laws: *haciendas* were often granted public funding; attempts at dismantlement were often lost in bureaucratic red-tape; or instead of being redistributed after a taking, a *hacienda* would often be kept intact and simply given to people in favor with government officials (always among the wealthy). This corruption was widespread and included many in the military and government officials across rank or height of office; there is even a documented case of a member of President Calle’s cabinet engaging in these corrupt practices.

The government’s interest in retaining *haciendas* was not solely for corrupt reasons. Economically, it made more sense to rely on large-scale agriculture production instead of a network of small producers. Economies of scale allowed large farms to have much higher marginal production and marginal profit values than small producers.

Infrastructure investment in an agricultural system centered on large-scale production similarly holds greater returns due to higher aggregate marginal benefit (economic gain per unit of infrastructure investment). The intuition is simple for the government's choice to invest in infrastructure and rely on large-scale farms to produce the majority of agricultural produce; larger farms require far less extensive development of irrigation systems and other agricultural infrastructure systems (silos, farm vehicles, roads to major markets) than do a network of many small farms. Additionally, larger farms are able to produce more than small farms using similar infrastructure services due to larger economies of scale.

The discrepancy between the mostly theoretical *ejidal* agrarian system and reliance on the well-established *hacienda*, or large-scale production system is the result of conflicting legislation. While there was a sizeable amount of rural/agriculture development legislation that mandated land redistribution and reform of the agricultural system, other laws designed to regulate agriculture were written under the assumption of maintained large-scale production. The structural inconsistencies among agricultural development and agricultural practice legislation (and ad hoc governmental practices) would not be resolved for years and contributed to a multitude of problems in the agrarian system throughout the PRI's reign.

Heavy Governmental Involvement as a Catalyst in the Rapid Development of Ejidos (1935-1940)

The Mexican government wished to remain true to its promise to establish a communal land system and in 1935 a new president, Lazaro Cardenas, shook the "transitory" status of *ejidos* and re-established them as a viable major source of

agricultural products. He expressed his goals for the *ejidal* system in his first Presidential Report in 1935; "...*ejidos* have requested that the farmer break free of his economic status as an adolescent, for in this condition the economic role of the *ejido* is not to produce a sufficient wage... *ejidal* quality and the agricultural system should be the basis of absolute economic freedom for the worker, [these] creating a new economic-agrarian system totally different from the previous regime... to replace the system of paid farm laborers [on large farms] and liquidate agrarian capitalism [meaning large-scale commercial agriculture] in the Republic." (Cardenas Government Report, September 1935) Over this period rapid progress was made in land redistribution and the establishment of supporting infrastructure for small producers, and small-scale production became a more attractive means for rural Mexican households to make a living (although rural peoples' participation in agriculture was inelastic).

Cardenas focused his efforts on reformation of various aspects of the historically ineffective land-distribution process. This goal led him to establish effective systems of credit for *ejidatarios* to invest in infrastructure and other technologies designed to increase productive capacity. Additionally, he gave the newly established Agricultural Department the authority to organize and manage *ejidos* and supplemental organizations, in an attempt to address the lag and/or inefficiencies in the land redistribution process, *ejidal* participation in markets, and physical agricultural production.

Under Cardenas, over 20 million hectares were redistributed to small producers, which is almost twice the amount of land distributed in the previous 19 years. Additionally, the quality of *ejidal* land increased- at the beginning of Cardenas' presidency, *ejidos* controlled 6.3% of actively productive farmland, by the end this

number had risen to 22.5% Similarly, arable land under *ejidal* control rose from 13.3% to 14.4%, irrigated land from 13% to 57.4%, and rain-fed land from 14.2% to 46.5%.

The massive land redistribution that took place during this period resulted in an agrarian system characterized by significant differences in primary modes of production, development, and goals than those of the previous regime (that of 1910-1935). Heavy governmental emphasis on actuating mandates that required land transfer from private ownership of large plots of land (including large-scale farmers) to small and public ownership created a marked shift in political and economic power in rural areas, characterized by a more equitable distribution of influence and benefit; in 1930, 123 million hectares of land were controlled by 481 thousand owners, and by 1940, 100 million hectares were controlled by 1.122 million households (a decrease in average amount of land controlled by a singular party from 255 hectares to 89 hectares).

The great reformation of the agrarian system that took place in this period was accomplished primarily through massive government involvement as evidenced in the creation and organization of *ejidos* and other communal lands. Additionally, the government amended, drafted, and redrafted a significant amount of legislation to increase the rights of small-producers. Finally, the government invested heavily in infrastructure development, especially in irrigation systems for *ejidos*. This heavy-handed approach accomplished Cardenas' goal of establishing *ejidos* as the backbone of Mexico's agricultural system; in 1930, *ejidos* accounted for only 11% of total agricultural production, but grew to contribute 50.5% by the end of Cardenas' presidency in 1940.

Regression of Government Thought on Agriculture, Agriculture in a Growing Mexico Characterized by Import Substitution, and Polarization of the Agrarian System (1940-1964)

After the high level of small holdings development during the Cardenas presidency, the government's goals for the agrarian system shifted back to those held before 1935; *ejidos* would be a transition to develop privatized land holdings, and a greater emphasis would be placed on large-scale farms to produce the majority of Mexico's agricultural needs. Less emphasis was placed on the quantity of land redistributed and creating infrastructure to support many new *ejidos*. Instead, government policies adopted during this period focused on increasing the quality of supporting infrastructure systems.

Although the *ejidal* system underwent massive development in the five years prior to 1940 in terms of the amount of land distributed and development of infrastructure services, many problems arose in the following years. Competition for resources such as land and water was an issue within and/or between *ejidos*, resulting in a lack of productive resources, thus creating a labor surplus that limited production per capita. What more, land distribution by the Agriculture Department was undertaken with minimal planning, which caused an odd patchwork of *ejidos* mixed in with larger farms and other private properties. This distribution made it difficult to develop an effective and cost-efficient infrastructure network, especially road and irrigation development. Planners' disregard for physical restrictions (i.e., mountains, proximity to aquifers, etc.) only exacerbated problems with infrastructure installation.

During the 1940s, import substitution became an official economic policy of Mexico. Coupled with rapid population growth and urbanization, these conditions had

profound effects on the shape of the agricultural system and rural development.

Population growth and growing urban demand for cheap produce created an incentive for the government to maximize the productive capacity of domestic agriculture. This was accomplished through the promotion of large-scale agricultural production (as these farms enjoyed the benefits of larger economies of scale), and developing regions with the greatest potential to produce large quantities of agricultural products.

Many unpopulated areas of the north held great potential productive capacities. Thus, in accordance with its goal of maximizing production, the government implemented a colonization program that created incentives for rural peasants and immigrants (mostly Germans) to colonize the north and begin practicing agriculture. Among these incentives was heavy public investment in productive infrastructure for northern regions.

As producing food for the population was of paramount importance within Mexico's import substitution policy, increasing the productive capacity of farmers was a main focus of the PRI's infrastructure development strategy. Extensive installation of irrigation systems occurred throughout this entire time period, especially from the 1940s onward. Patterns of agricultural infrastructure development in this period reflected the government's goals; large farms and northern regions were the primary beneficiaries of public investment in agricultural infrastructure to maximize production. This fact can be observed through the change in production distribution; while *ejidos* accounted for over 50% of total production in 1940, by 1960 only 3.3% of farms accounted for 54% of total production, while 50% of farms only accounted for 4% of the total. By 1960, large farms controlled 67% of irrigated land and 75% of agricultural machinery.

Public investment in such a small portion of the agrarian community (large farms and northern areas) created massive polarization among producers, in terms of financial gain, development of rural livelihoods, and geography. These patterns of highly inequitable distribution of benefits would persist until the 1990s, and had profound impacts on rural development. A small number of rural areas became wealthy, yet most regions of rural Mexico sustained little economic development and therefore were unable to increase standards of living by paying for the development of social infrastructure services (i.e., potable water, sewage, electricity, etc.).

Social Turmoil, Continued Governmental Indecision About the Agrarian System Structure, Agricultural and Economic Crisis (1964- Early 1990s)

Polarization and the inequitable distribution of public investment that initially arose around 1910 and were made much more extreme in the sixteen years following Cardenas' presidency caused social and political turmoil in the rural and agricultural arenas. While President Gustavo Díaz Ordaz (1964-1970) attempted to revert the primary mode of agricultural production back to dispersed communal farms by accelerating land redistribution and attempting to secure infrastructure services for *ejidos* via direct endowment and credit access, the years of inconsistent approaches to agricultural development had created a situation that was impossible to fix in one presidency. Factors such as continued urban growth and changing demand for certain products only exacerbated Ordaz's problems by creating clear incentives for the government to maintain large farm operations to meet these needs.

The previous years' decreased investment in productive infrastructure and reduced agricultural growth rate created massive unemployment and by 1970, 58% of

campesinos (farm workers) were either landless or practicing subsistence agriculture. Additionally, the land tenure system created by inconsistent and frequently changing policies was almost impossible for Ordaz to straighten out. Poor records of land tenure, allocations, investment projects, in addition to entangled bureaucracy, poorly planned land distribution schemes, and conflicting interests between various stakeholders all contributed to irreparable inefficiencies within the agrarian system. The only way to reorganize and streamline the system would be huge reformations to policies and the institutions that control them which would take place in the next period, but exogenous pressures coupled with the PRI's economic strategies and political philosophies prohibited such a radical change. However, new laws were enacted that created groups both on both local and federal levels which were designed to begin the reorganization process through carefully planned credit allocations, direct reorganization and redistribution of land tenure, and capital investment in infrastructure systems designed around this new land planning strategy. In effect these efforts were somewhat successful, but the number of *campesinos* that benefited were only a fifth of those under Cardenas.

These organizational problems and the inequitable distribution of benefits that defined successful or failed farms caused many peasants to revolt in the 1970s. Many resulted in the formation of non-governmental organizations composed of *ejidatarios*. These groups eventually came together and formed the National Union of Autonomous Regional *Campesino* Organizations (UNORCA), which lobbied for the right of *ejidos* and other small-scale producers to account for a larger share of total output and was often successful in securing market access and high levels of public investment for infrastructure development and improvement. However, it became the case that the work

of UNORCA was not wholly good for *campesinos*. UNORCA only represented a small portion of the entire *campesino* community, and it was only this minority that received the benefits of the revolts. This result only contributed to the already severe problems of structural inequities within the agricultural system. After these UNORCA deals, the *ejidal* system formed three tiers; a top tier with 4% of *ejidos* contributing 36.8% of total *ejidal* production, a middle tier with 21% of *ejidos* contributing 42.3% of production, and a marginalized tier with 75% of *ejidos* contribution 20.9% of production.

The rest of this period is characterized by economic downturns. Shaky economic policies created uncertainty that caused investment in infrastructure to decline rapidly. By 1982, the country fell into a severe recession and economic growth remained stagnant until the end of the decade. The economic situation in Mexico improved at a slow pace between 1988 and 1994, but another recession occurred in 1994, from which Mexico took close to three years to recover. These recession halted investment in infrastructure development and increased the overall productive importance of large-scale farms, thus the agricultural structure remained mostly the same over these years, and experienced little growth.

Manufacturing: Further Polarization of Rural Economies as Evidenced by Manufacturing Development in the North, and in Urban Centers

The manufacturing industry in Mexico took off with Mexico's rapid industrialization after the Revolution and recovery from the Great Depression in 1938. Public and private investment were poured into the industry as demand for manufactured goods increased with domestic population growth and both world wars. The sustained economic growth of the "Mexican Miracle" fostered investment in manufacturing, which

was a primary focus of many Mexican stakeholders, as it was perceived to be an industry in which development indicated an important transformation of a country's status from 'third world' to 'developed'. These conditions of rapid industrialization and economic success caused rapid urbanization (a trend that persists today). In 1930, the proportion of the total population that lived in rural compared to urban areas was 66.5% to 33.5%, but by 1960 had shifted to 49.3% to 50.7%. These rapid industrialization and urbanization trends had profound effects on the shape of infrastructure development during this period. These associated patterns of infrastructure development contributed to economic and social development (or lack of) in rural areas.

Manufacturing in the north was (and remains) a lucrative industry because of the close proximity to the United States. Thus, the government tried to maximize productive output by directing public investment to the expansion of the industry in the north, just as it had with agriculture. Public sector growth was high due largely to Mexico's import substitution policy, and by 1975, public sector investment accounted for 42 per cent of the total domestic capital invested.¹⁸

Consistent with majority public opinion, the government wished to rapidly develop manufacturing endeavors, and did so in the typical mode of the period; heavy public investment and government involvement in the industry was concentrated in geographic areas of political and/or economic significance. Thus, public investment in manufacturing was heavy and brought rise to many new manufacturing endeavors, including the creation of a synthetic fiber industry in 1947, an electric motor industry in

¹⁸ Brian Hamnett, *A Concise History of Mexico* (Cambridge: Cambridge University Press, 1999), 177-290

1948, and many others.) Although public investment was allocated to northern rural factories to increase export capacity, the rest earmarked for the manufacturing sector went to expansion of factories in urban centers to support domestic demand and rapidly growing population, which was increasingly concentrated in cities.¹⁹

Private investment in this industry came mainly from firms from abroad, especially the United States. U.S. firms created large factories in most northern states in order to more cheaply produce their products. From the beginning of the rapid industrialization process until the implementation of Mexico's isolationist economic strategies in the late 1960s, the primary source of investment in the creation of manufacturing infrastructure was foreign investors.²⁰

As Mexico attempted to isolate its economy from global pressures, foreign investment significantly decreased and the majority of infrastructure development was financed by the government or by Mexican private investors. These projects were developed in many urban centers, but rarely in rural areas. A major conflict that existed within the sector was Mexico's nationalism as illustrated by their import substitution policy and protective policies for domestic investors, and their desire to foster economic growth through private investment. While public investment greatly expanded the manufacturing sector during this period, Mexico also desired to capture the potential for growth associated with foreign investment. Not only would foreign investment increase employment opportunities and revenues, but would also help to restructure the Mexican manufacturing industry that was characterized by technological backwardness (a problem

¹⁹ Crandall

²⁰ Topik

created by import substitution). Often times, Mexican manufacturers that weren't developed or managed by foreign firms struggled in global markets. Inferior quality and high costs often meant Mexican manufacturers could not compete with global prices. Thus, when a new wave of nationalism brought about economic isolation less emphasis was placed on production for export and shifted toward meeting the demands of a growing domestic population and market. Growth in domestic demand sustained industrial growth for a few decades, and was centered mostly in urban areas but also along the northern border as Mexican immigrant workers in the United States were forced to return to Mexico, creating a huge influx of labor. The government's response to was to create the *Maquiladora* program (which would become very important to the Mexican economy), which created factories in northern areas to absorb these workers. It wasn't the 1980s that inadequacies and inefficiencies within not only the manufacturing sector, but many facets of the Mexican economy eventually created severe economic crises, and created the host of reformations we will explore in the next section.²¹

Thus, a major consequence of heavy public investment in geographically specific areas was further economic polarization and an inequitable distribution of physical benefits and opportunities for economic development. In the same way public and private (especially foreign) investment encouraged the development of the agricultural industry in the north through infrastructure development, the proximity to the U.S. created incentives for both the Mexican government and foreign firms to invest in northern regions. Also parallel to the agricultural experience was the pressures of high domestic demand concentrated in urban areas. While agriculture was forced to operate through

²¹ Hamnett

large-scale farms in the most productive regions, factories were set up in urban areas to meet demand and provide employment opportunities for the increasingly urban Mexican population.

Oil and Other Industries: Nationalized Industries, Revenue Streams, and Further Governmental Disregard for Stakeholders That Did Not Hold Significant Roles in the Government's Economic Development Plan

Other industries held little significance in rural development. Often economic activities practiced in rural areas that were not directly agriculture or manufacturing were related to agricultural support, or subsistence-level activities that were characterized by almost no productive infrastructure support and low levels of productivity. Communities that did not practice agriculture on a large level were often subjected to extreme levels of marginalization. These communities often did not enjoy access to the domestic market or public support to foster productive practices alternative to agriculture. Thus, these areas were very poor, and commanded little political or economic influence, and therefore received little social infrastructure from the government, and lacked access to basic services. Rural areas with heavy oil deposits did not enjoy economic success, as these assets were owned by wealthy urban-dwellers, and later by the government. Thus, the rich oil assets in some rural areas were not translated into rural wealth or increases to quality of life.²²

Non-Industrial Infrastructure Development: Few Physical Infrastructure Services and Social Infrastructure Systems for Rural Areas

²² Hamnett

As mentioned above, those who did not command wealth were subject to general disregard by the government, and many poverty-stricken rural areas were unable to receive public investment for infrastructure development, and could not finance private development. As a result, many rural Mexicans did not enjoy basic physical infrastructure services (such as electricity, potable water, and roads), nor social infrastructure services (such as health care, education, and access to financial institutions) until the end of this period.

Conclusions from Period One: Overall Trends in Rural Infrastructure Development from the Mexican Revolution to the Fall of the PRI

This period was characterized by highly centralized government control over most aspects of the political economy. Large amounts of regulation and bureaucracy created massive inefficiencies in resource distribution, and thus created numerous problems associated with non-market resource allocation (improper distribution of benefits that resulted in wealth polarization, environmental damage, improper development of industries ill suited to the various conditions of physical and human environments, etc.)

Additionally, the PRI created a political apparatus that retained political capital through corruption, cronyism, and inconsistent policies and government actions. Those that were in favor with the PRI greatly benefited from this apparatus, while the majority of average citizens, especially those in rural areas, were effectively ignored because they did not play a largely significant role within this apparatus.

Inconsistency among policies (e.g. agricultural development and management policies) and indecision between the promotion of nationalism or economic enterprise as

a primary motivator for development strategies created inconsistent and poorly planned infrastructure systems, fraught with problems of land tenure, resource allocations, and social and financial inequity.

Ultimately, this system of governance created a huge wealth disparity between groups along geographic and sector lines, that persists today. Additionally, it resulted in the rapid development of the Mexican economy and quality of life for rural and urban areas, while leaving rural areas far behind. Essentially it created two distinct “Mexicos”; one characterized by wealth and rapid progression into the status of a developed nation, and the other by marginalization and conditions similar to those of the poorest countries in the world.²³

Period Two: Drastic Change- Improvements to Rural Economies and Social Equity (early 1990s - Present)

Mexico’s economic struggles caused the government to rethink their economic strategies, including import substitution, heavy-handed governmental involvement and *ejidal* agriculture. Ultimately, changes in leadership, social and political values, economic goals, and the country’s role in an increasingly global community and market, brought about sweeping changes to the majority of government structures. Today, the government is attempting to address the issues of poverty and quality of life considerations for many of its citizens who live in rural areas. Additionally, it has demonstrated attentiveness toward environmental protection and the development of sustainable practices.²⁴

²³ Topik

²⁴ Hamnett; Secretariat of Agrarian Reform

Changing Conditions: Setting the Stage for Structural Reform

As the rocky economic period of the 80s and early 90s came to a close, the PRI suffered a reduced level of political capital and scrambled to retain control over the central government. This required the group to look outside of its usual constituency into other political arenas that might give the PRI an edge in the election. Among these was the large rural population. Significant policy advances in rural development were made and although many of these policies were misguided and ineffective, a precedent was set for the development of rural economies and improvement of social capital for rural areas. Additionally, the increased global presence in the Mexican political economy was a motivating factor in the increased interest in rural development. As Mexico worked on economic development in the global market, international groups pushed for rural development to both improve the quality of life for poor Mexicans in rural areas and improve Mexico's edge in the global market by developing rural economies.²⁵

By 1986, the federal government agreed to enter the World Trade Organization's General Agreement on Tariffs and Trade, and was followed by other liberalized trade agreements such as North American Free Trade Agreement (NAFTA), which ultimately led to increased private investment in infrastructure systems.

With the help of international aid organizations like the World Bank and the Organization for Economic Co-Operation and Development (OECD), Mexico began to develop rural development programs and agencies to execute them. As stated above, many of the initial versions of these programs failed, largely due to the lack of appropriate incentives and other structural issues. For example, water *use* rights (not

²⁵ World Bank, Country Partnership Strategy

outright ownership of water resources) were created and given to “user groups” so that they may best determine management strategies that were appropriate to the distinctive conditions of the region. However, poor federal support, inexperience, and confusion ultimately limited the success of these attempts. For example, the government lacked the resources necessary to monitor and regulate water use, so individual water use remained unchanged. However, these programs set the stage for the rise of decentralization and neoliberalism as primary avenues for development within government strategy.

In 1994, Mexico suffered another economic downturn with the Mexico Peso Crisis in which the Mexican peso was subject to high levels of inflation. As the poor economic performance of the 80s was still fresh in the minds of Mexican citizens, the PRI fell out of favor as the dominant political party, losing the majority vote in both houses of the legislature. In the 2000 presidential election, the PRI lost the presidency to Vicente Fox and the Alianza por el Cambio (English: Alliance for Change), which represented both the Partido Acción Nacional (PAN, English: National Action Party) and the Partido Verde Ecologista de México (PVEM, English: Green Ecological Party of Mexico). Alianza por el Cambio. This was the first time in over 70 years that the PRI did not hold power in either the legislature or the executive branches and this drastic change in political/institutional structure and philosophy opened the door to more extreme changes in policies.²⁶

In terms of changes to rural policy, a thorough analysis was undertaken to evaluate the effectiveness of existing policies. The effective aspects of current policy were retained, while those deemed inefficient or under-effective were revised. Policy that

²⁶ Crandall

favored big business over local and micro production, created artificial rents for large industry, contributed to the marginalization of the rural poor, or increased market inefficiencies were among the targets for policy reform. With guidance and assistance from international groups, el Alianza por el Cambio had specific goals in mind for the rural population: improve the quality of life by increasing access to social services, developing micro-production and economic diversification that plays to local competitive and comparative advantages, and providing necessary access to markets in order to support the development of these new micro-economies. The resulting reforms that were developed in the wake of this institutional shift have had varying degrees of success and many of the policies are currently in effect. The changes undertaken during this period were drastic and innovative. This period was characterized by a much more concerted effort by the central government to develop rural areas as compared to previous periods. As such, there is a wealth of policies, programs, agencies, political agendas, etc. created in this period to discuss and analyze.

Current Rural Policies: Goals, Policy Prescriptions, and Results Within the Current Institutional Framework

Reformations to rural policy that occurred at the beginning of this period embraced neoliberalism and decentralization as key components to the development of rural economies and improvements to the quality of life. With these principles in mind, an ambitious legislature and executive created a host of new laws, policies, and agencies to promote rural development through the creation of productive and social infrastructures, markets, and redistributed political power to regional governments. Perhaps one of the most important was the Law for Sustainable Rural Development

(LDRS) passed in 2001, which was the result of years of analysis on rural conditions, and an evolution of existing rural development laws. It identifies the problems of marginalization in rural areas, including poor market access, infrastructure support, an exodus from rural communities, environmental issues, and a lack of government support. Thus the law mandated action by the executive to create or expand agencies with the capacity to support rural areas by addressing these issues. Additionally, it set the general conditions and philosophies that would govern rural development, especially neoliberalism and decentralization, and the promotion of agriculture as a primary vehicle for rural economic growth.²⁷

Goals and Reasons for Current Policy

The overall goal for all current rural policies is to alleviate poverty, increase economic activity, and improve the quality of life for rural inhabitants, especially the rural poor. Mexico has adopted a two-pronged approach to rural development, through the actions of two agencies most heavily involved in rural development (SAGARPA and SEDESOL); economic growth and the creation of social infrastructure to widen human capital and improve basic living conditions. The following are specific objectives that current policy attempts to address in order to achieve these goals.

Market Access

As stated above, the importance of economic activity to rural development has been a key focus of most rural development policies. The central government has

²⁷ Government of the United Mexican States Legislature, 2001, *Ley de Desarrollo Rural Sustentable*

recognized that rural economies in aggregate can be major engines of economic growth on a national level. Thus, it has undertaken an effort to develop these economies by improving rural communities' access to regional, national, and global markets. The inability to trade with outside economies is the primary reason rural areas have been massively underdeveloped until recently. Market access is essential to facilitate growth, as trade will increase both monetary and material wealth of rural localities. Access to trade will create the incentive for production above the subsistence level. In aggregate, the increased level of production in thousands of localities will provide a significant boost to the national production level. Higher levels of production and export of goods will translate into increases in household income and thus increase consumption, according to basic macroeconomic theory. The increases in consumption will create the classic consumption cascade effect and national GDP will inevitably rise. Essential elements in providing market access to rural areas are improvements to infrastructure systems that augment productive capacities, and roads that grant access to markets external to each community.

The government, through the Secretariat of Communications and Transportation (SCT), has invested heavily in the road network, increasing the total amount of roadway from 239,235 kilometers in 1990, to 366,096 in 2008.²⁸ In terms of developing infrastructure systems to support agricultural production, the Secretariat of the Economy (SE), in conjunction with the Secretariat of Agriculture, Livestock, Rural Development, Fishing, and Food Supply (SAGARPA) and other agencies, have attempted to create easier access to credit for all farmers. SAGARPA is the leading agency in rural economic

²⁸ World Bank, Databank

development, because it regulates and promotes agriculture, the preferred vehicle for doing so within the legal framework. It has created and maintained a very large number of programs and institutions that perform a variety of tasks, including one that conducts agricultural research and creation of technological advances (one of the best agricultural research groups in the world, at one point employing Norman Borloug, a prominent agriculture researcher and Nobel Laureate), those such as the Direct Support to Farmland Program (PROCAMPO) designed to ease the transition between the pre-reformation system characterized by subsidy and direct financial support, to the current market-oriented system, especially within the context of NAFTA by promoting crops with large returns in the international market, those such as Alliance With You (Alianza) designed to develop underdeveloped agriculture in poor rural areas, those such as the Joint Venture Trust (FIRCO) that attempts to foster agroindustries that support Mexico's large agricultural sector, by encouraging private investment, and publicly investing in agrobusinesses. Additionally, SAGARPA works with the National Water Commission (CNA), the Secretariat of Environmental Protection and Natural Resources (SEMARNAT), and many other agencies provide physical infrastructure services that support agriculture through the development of physical infrastructure, such as irrigation services and tractors. SAGARPA's primary vehicle for rural development is its Rural Development Program, which is part of Alianza, and directly funds economic projects that are chosen from proposals sent to the program from citizens. The rationale behind this program was to promote entrepreneurship and establish a demand-driven approach to

government aid, as opposed to supply-driven as seen in the pre-reformation system of period one.²⁹

The amount of programs and organizations that operate under SAGARPA and other agencies to increase the productive support of rural areas lends itself to confusion, overlap, and inefficiencies within the bureaucracy. In fact, the bureaucratic red-tape and inefficiencies has somewhat defeated the purpose of economic development under liberal market conditions. Although many of these programs were meant to foster public investment in agricultural projects, government subsidy to agriculture is still high, largely due to the fact that the bureaucracy is ineffective. Additionally, areas ill suited for agriculture do not benefit to nearly the same degree from government efforts to develop rural economies, as most programs are designed around agriculture.³⁰

Economic Diversification

The long history of rural economies dominated by commercial agriculture shows that many rural localities, especially those in isolated areas, do not benefit from an agriculture-centered approach to rural economic policy. Thus, another goal of existing policy is to increase economic diversification in rural areas. The government is attempting to encourage the development of economic activities in which localities can use their strengths and thus competitive advantages to become efficient producers that can compete in global markets. Diversification of market activities can encourage industries that increase the wealth and education levels of rural areas, which can have an

²⁹ OECD. *Rural Policy Review: Mexico*, 2007

³⁰ Marcella Sánchez for the World Bank. 2006. *Decentralized Service Delivery for the Poor*. Mexico City: The World Bank-Mexico

extremely beneficial effect on quality of life. Areas in which economic diversification has already occurred (to a degree) enjoy high growth in non-agricultural employment and profit margins as compared to regions that have failed to diversify. This is not an isolated phenomenon; a study conducted by the OECD shows that other countries that have experienced rural economic diversification have high levels of employment growth.³¹ As unemployment is a pressing issue in Mexico today, rural economic diversification can be a powerful strategy to encourage economic growth while increasing employment. Yet real gains in diversification for rural economies have failed to materialize, for reasons mentioned above.

Access to Social Services

Generally, access to social services is a good proxy measure for quality of life. Access to services such as potable water, electricity, education, health services, sanitation, roads, etc. has large social returns. In terms of transforming a poverty-stricken locality to a developed one, especially in the long-run, these services are essential to poverty alleviation, economic success, and the establishment of a basic level of developed livelihood. Access to potable water, health services, non-dirt floors in households, and sanitation can drastically improve the health of local people. Electricity can improve household efficiency, enable the use of modern technology, enhance education, improve economic production capabilities, and a host of other benefits. Education can drastically improve the financial conditions of a locality. Attanasio and Szekely performed a regression in which they found education is responsible for 47% of

³¹ OECD/United Nations. 2011. *Economic Diversification in Africa: A Review of Selected Countries* (OECD Publishing), <http://dx.doi.org/10.1787/9789264038059-en>

rural poverty.³² Additionally, Yunez-Naude and Taylor cite several studies as evidence that “years of schooling have proved to have significant returns for the rural population and influence their choice of economic activity.”³³ Studies have been done that show that education is the critical factor that increases income, particularly secondary education.³⁴

The Secretariat of Social Development (SEDESOL) is primarily responsible for developing these infrastructures in areas characterized by poverty, and is considered to be mostly successful in the creation of programs that address the issues of rural social marginalization and are consistent with current overarching development principles of decentralization and neoliberalism. These programs represent the largest share of public expenditure on rural development at 61.9% of the total, although total public expenditure is low by OECD standards.³⁵ The most notable and successful of these programs is *Oportunidades* (formally known as PROGRESA), which attempts to deepen the pool of rural human capital by promoting education, health, and supplementing income. The key to its success is the conditionality of direct cash transfers to eligible families. In order to receive government aid, the family must assure their children attend school, eat well, see a medical professional regularly, and other conditions designed to improve human capital

³² Orazio Attanasio & Miguel Székely, “Household Savings and Income Distribution in Mexico,” *RES Working Papers* (1998)

³³ Edward Taylor & Antonio Yunez-Naude. *Education, Migration, and Productivity: An Analytic Approach and Evidence from Rural Mexico*. (Paris: OECD Publishers, 1999)

³⁴ Caridad Araujo, Alain de Janvry, and Elisabeth Sadoulet, “Peer Effects in Employment: Results from Mexico's Poor Rural Communities,” *Canadian Journal of Development Studies* Volume 30, number 3-4 (2010)

³⁵ Inter-Secretarial Committee of Sustainable Rural Development, *Programa Especial Concurrente*, Office of the President of the United Mexican States. (2007);

in new generations. *Oportunidades* and other social development programs have been so successful that they have received indefinite extensions and budget increases.³⁶

Ecological and Economic Sustainability

A heavy focus on the long-term timeframe of development has been present in the policy creation process. International organizations have encouraged the government to create policies that allow for an equitable distribution of benefits across generations. Economic sustainability is important to maintain or improve quality of life levels over time. Ecological sustainability is important to reduce pollution, retain the economic and intangible values of natural environments, and produce other benefits important to improved quality of life levels and economic success. Therefore, the Mexican government places heavy emphasis on environmental sustainability in rural development policy. As a global leader in international environmental agreements such as the Kyoto Protocol, Mexico holds environmental sustainability a high priority in rural development schemes as illustrated by the names of numerous laws and agencies that focus on rural development (e.g. The Law for Sustainable Rural Development). A number of alternative energy projects are being developed in Mexico, many within proximity to local communities that could benefit. Additionally, solar, wind, biomass, and hydroelectric micro-production within rural communities as a more practical way to produce electricity are being developed. This method is consistent with Mexico's goals for rural development, as electricity an essential infrastructure service to the development of the

³⁶ OECD

rural economy and elevation of quality of life, and renewable energy sources are clean and sustainable.³⁷

Much like the oil industry, the electricity industry is operated by a state-enterprise, which has prevented widespread development of large alternative energy projects, due to a government mandate that requires the company to always pursue the cheapest energy source, which are traditional fuels.³⁸ This is in spite of Mexico's international commitments to alternative energies, and the fact that it has a large amount of renewable energetic resources, such as abundant wind and solar radiation. In addition, Marquez Engineer performed a study that indicated that for Mexico's level of GDP, current production of certified emission reductions are 5 million less than expected.³⁹

Problems in Rural Development

From some of these examples about inefficient government and bureaucracy, continued use of subsidy and state-enterprise, and discrepancies between policy and actual government action (or lack thereof), it's clear that there are major flaws that exist within the rural development framework, and the overall government system. These will be explored further in the next chapter.

³⁷ Elizabeth Lokey, "Barriers to Clean Development Mechanisms: Renewable Energy Projects in Mexico," *Renewable Energy* 34 (2009): 504-508

³⁸ Ibid.

³⁹ Marquez F. Engineer for ETEISA, August 29, 2007: Mexico City, Mexico

CHAPTER III

CONDITIONING FACTORS

Rural infrastructure development is subject to conditioning factors that promote rural development policy creation, the development of new rural infrastructures including investment, and a dedicated and widespread regulatory system in order to plan and manage rural development so as to maximize infrastructure development effectiveness. However, a number of factors have limited infrastructure development including macroeconomic and political considerations, wealth and power distribution, technical and planning challenges, funding schemes, policies that have perverse outcomes, certain aspects of the legal framework, and the bureaucratic structure.

Needs of Rural Areas in Mexico

While the quality of life in rural areas of Mexico has improved greatly in recent decades through investment in infrastructure development to provide essential services, rural areas are still in a much worse position in terms of economic productivity and quality of life levels as compared to urban Mexico. Wealth distribution in Mexico is one of the most polarized in the world, and real gains in quality of life for the large rural population will not occur unless this issue is addressed. Doing so will require improvements to infrastructure that will increase rural economic productivity, which will translate into wealth accumulation and quality of life increases. This can be achieved through further investment in productive physical infrastructure and better social

infrastructure systems. Not only will investment in these types of infrastructure create immediate benefits for rural citizens, but also in the long-term if development strategies contain appropriate long-term considerations, especially environmental sustainability as it will contribute to economic sustainability (thus livelihood security for future generations).¹

Geography and the Nature of Rural Infrastructure Development

General Conditions of Rural Development

If one looks at rural economic health and levels of development across a multitude of countries, it is clear that on average, rural areas are poorer and do not enjoy as high of a level of infrastructure services relative to urban or suburban regions. This is a natural outcome of the nature of rural areas. Realistically, the level of infrastructure services in rural Mexico will never be on par with urban areas. However, infrastructure development in rural areas will be key to alleviating poverty and improving the quality of life for the large number of poor rural Mexicans. Long distances and difficult terrain create problems in infrastructure creation, especially those that need to traverse the distance to connect to infrastructure systems that serve urban areas as well (e.g. electricity). Small markets compound the problem; infrastructure projects often require a large degree of funding, physical materials, skilled construction laborers, and advanced construction equipment. Rural areas often do not achieve a high level of income, and thus are not easily able to finance infrastructure development projects by themselves.

¹ Agriculture and Rural Development Unit, *Agriculture and Rural Development Public Expenditure Review* (World Bank Group, 2009)

Rural areas often have large tracts of land with a small population, for which a small number of elected officials must perform a number of roles as policy makers, community organizers, bureaucrats, and economists. Thus, the creation and management of infrastructure projects is often bore by a number of community members in addition to the formal governmental structure. Thus, human capital considerations are important to rural infrastructure development, and can be streamlined through formal collaborative and organizational channels between the government and community members (more will be explored later in this chapter).

Another aspect of rural infrastructure development is reliance on outside groups for infrastructure technologies, construction (if the rural area is ill equipped or not knowledgeable about the infrastructure technology), and sources of funding. Historically, this has been a major factor in the lack of infrastructure development in rural Mexico. Rural Mexicans did not have sufficient political power to encourage outside public investment in infrastructure services. Not only did this result in poor living standards from lack of services like potable water and sewage, but also in economic growth stagnation from lack of productive infrastructure services. As rural areas are already very poor in Mexico, a lack of economic growth causes a lack of private investment in infrastructure services, as these economies have not demonstrated an ability to create returns for investors. Moreover, this lack of growth has continued to limit the political influence held by poor rural areas. Thus, a cycle of underdevelopment, key to understanding how a lack of infrastructure development has had a profound effect on quality of life is formed; poor infrastructure development limits the productive capacities of rural economies, causing little economic growth (and low increases in quality of life

levels). This in turn, limits both private and public investment (through high investment uncertainty and low political influence), which continues the trend of poor infrastructure development.

Heterogeneity Among Rural Areas in Mexico

A key aspect that will vastly affect the progress and effectiveness of infrastructure project development in rural Mexico is the heterogeneity among rural areas. The components of this heterogeneity are threefold and include physical, social, and economic considerations. Physically, the climates and environments of rural areas vary across regions, including vastly different tropical and desert climates. Additionally, the distances from urban centers and the concentration of rural communities vary by case. Socially, cultural identity varies in rural areas. These cultural identities create differences in the social structures and values among rural communities. Efficient organization between the government and community members largely depends on the government's ability to appreciate the perspectives and values of local communities in order to better tailor the creation of infrastructure services to meet cultural and social needs. Additionally, an understanding of the social structure of a rural community can lead to more efficient organization and cooperation between government and community. Economically, the physical and social identities of rural areas in Mexico have shaped rural economies in different ways. While some areas depend on agriculture as a primary source of economic activity, others rely on manufacturing, forestry, fishing, or others to drive economic engines.²

² OECD. *Rural Policy Review: Mexico*, 2007

The extreme heterogeneity among rural areas warrants careful planning of infrastructure development that is specifically tailored to each region. A “one size fits all” planning regime would be highly ineffective in many rural areas while benefiting others, further contributing to wealth and power polarization. Mexico has tried this approach in the past, with communal agriculture as the most notable example. In some regions this was an appropriate response, but in many others that were not suited for this role, infrastructure investment was poor because the productive capacities of these regions were unable to match those fit for agriculture. Clearly, productive infrastructure development in rural areas must be tailored to the strengths of each region.

Technical challenges

A number of technical challenges must be addressed to develop rural infrastructure services. First is the inability for many regions to connect to infrastructure systems that support cities. For example, it is fairly certain that it will never be economical to connect an isolated rural area to the electrical grid. Doing so would require an enormous capital investment to service a relatively tiny market. This example highlights the challenge of creating a self-sufficient environment in which primary infrastructure services must be created within the community.

Economic Climate

The Nature of Rural Economies

As mentioned above, economic growth is essential to foster infrastructure development important to improvements in quality of life. This happens through both economic and political channels. Wealth accumulation can give communities the

opportunity to finance infrastructure development. Additionally, economic growth can foster private and public investment in productive infrastructure systems. Furthermore, economic success can easily translate into increased political power, which can lead to further public investment in infrastructure services.

Also mentioned above, rural economies vary in structure and productive capacities. Those in the north are characterized by manufacturing and agriculture, and are relatively wealthy. Those in the south often rely on subsistence agriculture or other small-scale activities characterized by low levels of productive output. This pattern of development is largely due to market access, and illustrates the importance of market access to the economic health of rural regions. Because economic health is important to the creation of infrastructure, market access is a determinant of regional infrastructure development. The north's proximity to the United States (a wealthy consumer) fostered trade that created trading potential for northern economies. These trading opportunities created an obvious demand on rural economies that translated into infrastructure development to augment productive capacity. This resulted in economic growth and wealth accumulation, enabling northern regions to finance 'quality of life' infrastructure development. Southern regions do not enjoy easy access to global markets, and will almost certainly never have market access on par with the north. Domestic markets are also difficult to enter for southern rural economies, as a large share of production in the south occurs in urban centers. A key element in creating growth for southern regions will be to foster economic activities tailored to the strengths of each rural economy, to create products that can compete with market prices and foster trade with the domestic and potentially international markets through an intermediary.

Poor infrastructure development in many rural areas has limited growth in another essential way; it has not introduced technological advances in productive infrastructure systems, the sole component of long-term economic growth in many economic growth models, including the Solow Model. Long-term rural economic growth will not occur by increasing the number of *burros* pulling plows, but by increasing the technological level of physical and social infrastructures.³

The macroeconomic distribution of production has changed little from period one to period two; urban centers and northern regions constitute a majority of productive activities. While some economic development has occurred in rural regions that are not part of the North due to productive infrastructure investments, these regions' economies are still limited by poor market access and only small amounts of productive infrastructure gains. Since the growth of rural economies is dependent on agriculture (because a majority share of rural residents engage in agricultural activities, and the government has chosen to focus on agriculture for economic development), the growth of these economies depends closely on supportive infrastructure growth. Productive agricultural infrastructure includes both physical and non-physical systems, such as irrigation systems and improvements to technical knowledge about growing strategies.

Macroeconomic Climate

The economy of Mexico is one of the largest in the world; ranked thirteenth in nominal terms and eleventh in purchasing power parity. A high level of international trade characterizes Mexico's economic climate, as exports constitute a large share of GDP. Agricultural and manufacturing industries in the North and East export a large

³ Oliver Blanchard. *Macroeconomics* 5th Edition (Prentice Hall Publishing, 2008)

number of goods to domestic and international markets (primarily North America).⁴ Manufacturing centers in this region producer both low-level manufactured products, but a large amount of high technology products as well, including complex auto parts, chemicals, appliances, high definition televisions, computer hardware, smartphones, etc. These northern industries are typically owned by international corporations usually based in the United States, due to the proximity of northern regions to large buyers of Mexican products. The high level of foreign private investment in these regions supplements the high level of productive infrastructure services in the region. Coupled with a high level of productive public investment in the region, the North is easily the most economically dominant region in Mexico.

Investment in productive infrastructure is key to developing rural economies as an engine for macroeconomic growth, the development of these infrastructure services in rural areas is likely to have large returns due to the significant lack of such services currently. Additionally, improvements to current rural infrastructure systems are essential to promote increases in economic productivity. Easterly, Calderón, and Servén estimate that Latin America suffered an annual one to three percent loss in GDP growth due to weak physical infrastructure, and Rioja estimated losses in productivity due to weak physical infrastructure are equivalent to forty percent of real per capita income for Latin America.⁵ On a macroeconomic level, these losses translate into a significant loss of competitiveness in the global market.

⁴ World Bank, “Databank for Mexico,” The World Bank Group, <http://data.worldbank.org/country/mexico> (accessed January 30, 2011)

⁵ William Easterly, César Calderón, and Luis Servén, “How Did Latin America’s Infrastructure Fare in the Era of Macroeconomic Crisis?” *Working Papers of the Central*

PEMEX is a huge source of income for the government of Mexico. Additionally, it is used as an intermediate source of international public borrowing. Thus, PEMEX is hugely important to the federal government as a source of finance. The government's reliance on PEMEX, a state-enterprise, in addition to continuing high levels of public investment in the productive northern region, implies the government is unwilling to give up large sources of income, regardless of its vocal commitments to neoliberal and decentralized principles, commitment to improving economic benefit equity across all regions, and a lack of long-term sustainability of these practices. For example, hydrological sustainability in the North has not been achieved, because the government offers electricity subsidies for running pumps (inconsistent with neoliberalism and diverges public resources away from development of other rural economies), and does not have a comprehensive nor effective water management plan. While this may increase the productivity of the region in the short-term, agriculture will undoubtedly suffer a large drop in productivity in the future. Another example that highlights the lack of economic sustainability that has resulted from governmental actions inconsistent with neoliberalism and decentralization has been the use of PEMEX as a borrowing mechanism. PEMEX is state-owned, and borrows on behalf of the government while subsidizing fuel costs for general use in Mexico. It allows Mexico to borrow at levels higher than the international standards, which undoubtedly result in a large accumulation of debt.⁶

Bank of Chile 185 (2002); Felix Rioja, "The Penalties of Inefficient Infrastructure," *Review of Developmental Economics* 7, no. 1 (2003): 127-137

⁶ Geri Smith, "Pemex may be Turning from Gusher into Black Hole," *Bloomberg Business Weekly*, December 13, 2004

Political Climate

General Conditions

The structure of the Mexican government is that of a democratic republic and at the federal level consists of a bicameral legislature, an executive authority, and a judicial system. These branches interact with each other in nearly the same way as in the United States. The legislature will pass laws that mandate executive action to execute certain rural development strategies, the constitutionality of which are assessed by the judicial system. Thus, all three branches play key roles in the rural development process, and each are subject to stakeholder pressures typical to infrastructure development such as political capital constraints, stakeholder pressures from various groups, funding considerations, bureaucratic organization and funding limits, macroeconomic health, citizens' quality of life, etc. Additionally, state, municipal, and community governments also act in a way similar to the United States.

The political party with the most power is the Partido Acción Nacional (PAN) and enjoys a plurality in both houses of the legislature, and control the presidency. The PAN is considered to be center-right in Mexico's spectrum of political ideologies, and supports Mexico's free trade agreements, and encourages privatization, decentralization, and liberalism as fundamental conditions for most governmental actions, including policy creation and management schemes.⁷

⁷ United States Central Intelligence Agency, "The World Factbook: Mexico," United States Government, <https://www.cia.gov/library/publications/the-world-factbook/geos/mx.html> (accessed November 2, 2010)

Distinctive Factors

One factor distinctive of Mexico's political environment is the high disparity of power distributions among socioeconomic classes, and geographic regions. Mexico is still considered to have an enormous income gap, and political power is somewhat distributed along the lines of wealth. As the wealthy do not receive direct benefits from infrastructure development projects, the government has experienced some difficulty in gaining the support of the wealthy minority, who hold not only political power, but also monetary resources that could finance rural infrastructure development through private investment. The loss of political capital that could result from upsetting the wealthy is potentially very high, and this threat limits the government's ability or willingness to quickly carry out its rural development objectives, and creates incentives for the government to compromise or "shortcuts" in development strategies. Compromise often leads to a multitude of perverse outcomes, and poor performance of infrastructure investments because the shortcuts did not allow for proper planning within regional, social, or economic contexts.⁸

Another distinctive factor is the significant international attention rural Mexican has received. Not only is rural development important to the economic and social interests of the United States, but academia and development groups alike have examined and in some cases, funded and/or worked with the Mexican government to help shape rural development strategies. Many areas in rural Mexico are considered as existing in "third-world" conditions, yet Mexico is also characterized as having a extremely

⁸ William Ascher & Corinne Krupp. "Rethinking Infrastructure Development." In *Physical Infrastructure Development: Balancing the Growth, Equity, and Environmental Imperatives*, ed. William Ascher & Corinne Krupp, 1-35. New York: Palgrave MacMillan, 2010.

productive and powerful economy. Therefore, Mexico is expected to have significant financial and human resources to effectively plan and administer rural development policies, and other factors that could be conducive to rural development, such as established international trade connections. Thus, Mexico is considered to be a “laboratory” of sorts for poverty alleviation and the improvement of “third-world” conditions.

Finally, corruption still plays a large role within the governmental apparatus. Although improvements in this area have been made through the work of the Secretary of Civil Service (SFP), the immense financial wealth of drug lords creates a high level of corruption, which translates into a political environment in which taking bribes is somewhat normal. In this type of environment, the government may act in ways detrimental to the accomplishment of goals for rural development, by drafting legislation under the influence of bribes, causing agencies to act in ways inconsistent with the promotion of rural development, creating outcomes within the judicial system that are detrimental to rural development strategies, etc. What more, a vast amount of public resources that could go to rural infrastructure development and other public expenditures are used to fight corruption and the drug war. However, if effective government is to be achieved, and social and political stability and peace are to be restored to areas (including rural localities) affected by drug wars, the elimination of corrupt practices and powerful drug lords must be achieved. Thus, heavy public expenditure in this area is certainly warranted.⁹

⁹ Secretariat of Civil Service, “Conoce la SFP,” Government of the United States of Mexico, <http://www.funcionpublica.gob.mx/index.php/conoce-la-sfp> (accessed April 20, 2011)

Long-term Considerations

After over seventy years of PRI rule in which it enjoyed absolute control over all aspects of government, and most of the economy, the democratic election process was re-established as a legitimate avenue for representation in government. It is projected that never again will any political group in Mexico command the level of power, nor enjoy power as long as the PRI did in the twentieth century. Many believe that Mexico's current multi-party system, similar in function to that of the bi-partisan system of the United States (except with three or possibly four parties), will continue to be the fundamental political dynamic for many years to come. This implies that long-term considerations such as infrastructure development will have to be planned within this context. Political parties that oppose the fundamental values and strategies of the PAN will undoubtedly rise to power, and perhaps fundamentally change infrastructure investment strategies, if not adjust existing strategies.¹⁰

These expected changes contain potential benefits and problems. It is possible that rural development could be inefficient or poorly structured in the long run, which could be fixed. Additionally, projects that have become a net cost to Mexico might be terminated with a fundamental political change. However, potential discrepancies might arise between the time frames of political power dynamics and infrastructure development. It is possible that projects might be terminated when they should not be, or long-term development strategies might be changed before reaching their goals, which would waste large financial and human capital investments.

¹⁰ Daniel Levy & Kathleen Bruhn with Emilio Zebadúa, *Mexico: The Struggle for Democratic Development* 2nd ed. (Berkeley: University of California Press, 2006)

Legal Framework

A legal framework for rural development was passed by the legislature in 2001, which outlines the goals and general strategies involved in rural development. The Law for Sustainable Rural Development was drafted with the purpose of creating a new institutional framework for social policy. In addition to provisions mandating coordination among agencies, the law also dictates that the government takes a “bottom-up” approach to rural development, consistent with Mexico’s new decentralization philosophy, and shifted development strategy from supply-based planning to need-based. Thus, the needs and conditions of each distinct region can be more appropriately considered in the planning process. Additionally, the law attempts to foster community participation through the creation of Rural Development Councils that act as institutional entities that facilitate the participation of rural populations and their organizations in the formal planning and management processes.¹¹

The Structure of Development Strategies

Government Philosophies in Development

The government’s stance toward rural development vastly affects all aspects of infrastructure creation. It is a necessary element in the creation of market access and other economic conditions, and also to develop all types of infrastructure through planning and management. The massive amount of rural development projects and agencies currently in existence are illustrative of the government’s willingness to pursue rural infrastructure creation. Additionally, neoliberal and decentralized policies coupled

¹¹ OECD, *Rural Policy Review: Mexico*, 2008

with attempts to create streamlined bureaucratic systems that include stakeholder input at all governmental levels (ie. federal, state, municipalities, community organizations), and across areas of interest and industries (agriculture, energy, etc.), suggest an understanding that rural development must be tailored to each region, and various stakeholders need to be “on the same page” in order for these strategies to be effective. The government also appears to be focused on sustainability issues, and long-term planning in general, as illustrated by the emphasis of sustainability in many aspects of rural development policy and agency mandates.

Another aspect of development strategies is the degree of adaptation to lessons learned from previous experiences. Adaptivity was not included in Mexican development strategy in period one largely due to political reasons, as illustrated by land redistribution schemes. Nationalism was at odds with sensible economic strategies, and development schemes often oscillated between benefiting peasants and large farms, without finding a compromising solution. This can be accounted for by two considerations; a lack of oversight into the effectiveness of development schemes, and through the lack of a formal development plan that was congruent with factors exogenous to rural development, such as macroeconomic conditions and demands created by population growth and urbanization. Currently, rural development strategies are subject to continued evaluation by domestic governmental groups and international groups committed to assisting Mexico in evaluation and adaptation. Thus, rural development strategy is continuously being evaluated and changed to meet the needs of rural communities, and is consistent with the legal framework of Mexico and takes into account exogenous factors that could lead to perverse outcomes.

Productive physical infrastructure development is currently centered on augmenting the productive capacities of agriculture. Clearly, agriculture is the government's preferred avenue for rural development through the development of rural economies. This is illustrated by a number of facts; first, the Programa Especial Concurrente Especial (PEC) rural budget's accounting methods that consider productive infrastructure creation to be primarily agriculture (instead of others, e.g. energy generation projects), and that close to 70% of public investment in productive expenditures tend to go directly to agricultural endeavors, and a portion of the remaining 30% funds industries that support agriculture.¹² Additionally, the PEC explicitly emphasizes the importance of agriculture to poverty alleviation and rural development considerations.¹³ Second, SAGARPA is the primary agency at the helm of Mexico's formal rural development strategy that focuses on neoliberal market principles, and developing rural economies.¹⁴ Third, agriculture has cultural and historical significance to rural populations, and accounts for the largest amount of employment in rural regions. Finally, international aid agreements such as the World Bank's Sustainable Rural Development Project have adopted agriculture expansion as the primary vehicle for rural development and work closely with SAGARPA within this context.¹⁵ (WB Mexico Sustainable Rural Development Project, 2009)

The PEC rural budget indicates that rural spending per capita is now at the same level as urban spending. This indicates that rural development is a serious matter to the

¹² World Bank, *Agriculture and Rural Development Public Expenditure Review (ARD PER)*

¹³ PEC

¹⁴ OECD, *Rural Policy Review: Mexico*

¹⁵ Sustainable Development Department, *Mexico Sustainable Rural Development Project* (World Bank Group, 2009)

Mexican government; rural expenditures account for 43% of the total budgets for agencies in the federal CIDRS, and is equivalent to half of the GDP created by agriculture (the highest rate in Latin America), and close to 2% of national GDP. (World Bank, 2006; World Bank ARD PER, 2009) Additionally, public spending on rural development is more oriented toward the development of social programs, rather than those designed to augment productive capacities. (Same source)

The original PEC document also categorized six distinct goals for rural development: improve social conditions, production support, provision of basic and productive physical infrastructures, improve labor conditions, land conditions, and to protect the environment in the rural development process. Each agency has programs to address issues within its specialty, and sometimes the goals of various programs overlap, in which case agencies are supposed to collaborate.

The problem with the approach toward rural development is the adoption of neoliberal and decentralization principles (in order to obtain international funding for development efforts), but continuing to exert many “big government” principles, as seen during the regime of the PRI, that are inconsistent with neoliberalism and decentralization. An inherent lack of planning and organization on the federal level has created a multitude of problems within Mexico’s rural development strategy.

Neoliberalism and Decentralization

Development strategies across the globe have been increasingly focused on decentralization and neoliberalism. This is largely a product of these concepts being “in fashion” within academia and international development groups, such as the World Bank. Because current rural development thought focuses on these concepts, in addition to a

majority of funding coming from these international groups, Mexico has developed a strategy consistent with these principles and would be unable to receive essential funding for infrastructure development and management projects without adopting these principles.

Benefits

The benefits of decentralization have clearly improved Mexican rural development schemes in areas that were sources of failure in the past. Whereas full federal government control over rural development schemes during the administration of the PRI resulted in inefficiencies because strategies were not thoroughly planned to play to the strengths of individual regions, currently Mexico has an augmented ability to finance and devote human capital to planning and specific strategies for individual regions. Decentralization is key to developing this type of “region-specific” development strategies. It allows local groups to be more involved in the planning process, which increases the likelihood that a development strategy is created appropriate to the context of each rural area. Canning and Bennathan conducted a cross-national study on physical infrastructure, and one of their most important and relevant findings was that infrastructure development makes sense when it is complementary to economic growth because of synergies in human capital/ social infrastructure investments and in conjunction with other related physical infrastructure investments.¹⁶ Thus, the Mexican infrastructure development strategy is correct to design infrastructure projects that are complementary to both physical and social conditions specific to each region.

¹⁶ David Canning and Esra Bennathan, “The Social Rate of Return on Infrastructure Investments,” *World Bank Policy Research Working Papers* no. 2390 (2000)

International groups (including the World Bank) dedicated to the development of third world countries have praised decentralization as a development scheme, citing improvements in service efficiency and equity distribution; and improved accountability, empowerment of local communities, and benefits in resource management.¹⁷

Additionally, there are significant benefits to neoliberalism in the case of Mexican rural development. Allowing the market to define rural economies can result in rural development with economic and environmental sustainability considerations. This is particularly important in the Mexican case, as strategies in the past have been rife with subsidies and government-driven allocation of benefits, which had created wealth polarization, and underdevelopment in many rural regions. Additionally, import substitution policies that created protection from global markets caused stagnation in technical innovation and structural deficiencies within many industries, which proved to be harmful to the growth of the Mexican economy as a whole.

Allowing the market to allocate resources has significant environmental sustainability potential. Full-cost recovery pricing for goods and services can create market conditions that allow a resource to be conserved to an appropriate degree, especially if the social cost of using the resource is included in the pricing scheme. The Mexican government and international groups that are responsible for rural development strategies should take into account the fact that this pricing system could have significant

¹⁷ Musa Asad et al, "Management of Water Resources: Bulk Water Pricing in Brazil," *World Bank Technical Papers* no. 432 (1999); John Briscoe et al, "Water in the Economy of Tamil Nadu, India: More Flexible Water Allocation Policies Offer a Possible Way Out of Water-Induced Economic Stagnation and will be Good for the Environment and the Poor," *World Bank Water Policy* no. 8 (2006) 1-13

impacts on the structure of regional economies, and could entail significant departures from traditional forms of primary economic activity.

Problems

Physical infrastructure development for some rural areas within the context of neoliberalism can be difficult, as rural economies have evolved without the availability of these productive infrastructure services. As a result, there is low demand for these services, and private financing of infrastructure development, that was already inadequate at the local level to cover costs, is further reduced. For example, many isolated communities do not have access to electricity, and although the provision of electricity services could greatly improve both the productive capacity and quality of life for the region, there is little demand for electricity due to the structure of this community's economy, coupled with locals' lack of knowledge about the ways in which electricity could improve their community, and the various roles of electricity technology (both economically and technically).¹⁸

Decentralization and neoliberalism in rural Mexican infrastructure service development and management has garnered criticism when combined with neoliberalism. Critics of these policies claim that they are simply used by the federal government to shirk the administrative and financial responsibilities associated with infrastructure development and management, citing a reduction in government investment and responsible agencies in infrastructure development; public investment in water

¹⁸ Corinne Krupp, "Electrifying Rural Areas: Extending Electricity Infrastructure and Services in Developing Countries," in *Physical Infrastructure Development: Balancing the Growth, Equity, and Environmental Imperatives*, ed. William Ascher & Corinne Krupp, (New York: Palgrave MacMillan, 2010): 203-225

infrastructure development and management fell by 9.3% from 1992 to 2001, while demand has grown with the population and economy.¹⁹ Water and agriculture related federal agencies also experienced downsizing in terms of the number of agencies, divisions, and personnel.²⁰ An additional criticism is that these policies do not result in equitable benefit distributions, but further contribute to Mexico's historical trend of "preferred treatment", in that privatization does not represent a "new" decentralized management scheme, but instead is a form of "re-centralizing" control over resources (eg. water) subject to the demands of the market, rather than households.²¹

Wilder and Lankao's 2006 paper examines the effects of decentralization and neoliberalism within Mexico's water policies to "ascertain whether it [neoliberalism and decentralization] is linked to more efficient water management or sustainable use of water resources, and to examine its development implications". While they found that decentralization creates benefits via democratic processes as a result of "transference" of user rights, they also found that it did not lead to a more equitable distribution of benefits, and that decentralization of water rights is "context specific, and marked by limited benefits and multiple paradoxes".

Wilder and Lankao found three problems with decentralized and neoliberal water management and development strategies in Mexico. The first is that Mexico's privatization strategies are limited in their ability to resolve larger, politically charged

¹⁹ Patricia Romero Lankao, "Mexico: Water for the 21st Century. Main Tendencies and Challenges," (presented at 62nd national conference of the American Society for Public Administration)

²⁰ M. Wilder, "Water policy, the State and *Ejidatario* Producers in Northern Mexico," PhD diss., University of Arizona, 2002

²¹ B.R. Johnston, "The Political Ecology of Water: an Introduction" *Capitalism, Nature, and Socialism* 14 no. 3 (2003): 73-90

issues such as water scarcity, water rights redistribution, or long-term environmental planning. Environmental protection is often “held hostage” to political and economic considerations, as productive output is often held as a higher priority than conservation, and economic and political pressure on elected officials causes them to disregard significant environmental considerations when creating policy.

Second, these strategies often result in a lack of financial resources for maintenance and improvements to infrastructure systems. High resource costs that have resulted from full cost recovery pricing cause a market environment prohibitive of charging users extra to maintain infrastructure, invest in new infrastructure, or develop new infrastructure technology. In turn, this will limit the productive potential of the agriculture sector and will not result in sustainable water practices. For example, many irrigation districts in northern regions do not use a large amount of drip irrigation, a method that could both conserve water resources and increase productive capacity (by decreasing costs for producers). However, the high initial costs for the creation of drip irrigation infrastructure prohibit producers from investing in this type of irrigation.

Third, the creation of a water rights market causes a net transfer of rights from *ejidos* or other *campesino* lands to private and/or corporate hands. The World Bank provided funding for water management programs contingent on neoliberal strategies, and highly praised the creation of water rights markets because of efficiency gains, as “surplus” water could be sold by small-scale producers to larger farms, while creating a source of income for the rural poor. This aspect of Mexico’s water management scheme was called “brilliant” and “genius” by the John Briscoe in the World Bank’s initial recommendation to Mexico to adopt this scheme. Yet from a social and equitable

perspective, these markets have been less successful. Small producers will often sell essential water rights and suffer large losses in productive capacity. Often, these small producers need quick cash for emergencies or to pay off mounting debt (created by price increases in other productive inputs). Additionally, questions have been raised about the distribution of benefits and real control of the resource. For example, some user groups are controlled by small groups of private elite, instead of by a democratic system with equal power distributed to each member. These perverse outcomes are highly contextual, and in areas where the transference process went smoothly, often an individual or committee from the federal water agency was deployed to monitor the region in an oversight capacity. Overall, little or no real gains for small and/or ejidal producers raise questions about current decentralization and privatization (via neoliberalism) schemes as appropriate or effective development strategies.²²

Bureaucratic Structure

General Structural Conditions

The bureaucratic structure involved in rural development strategies is the product of a diverse representation of social, as well as industrial and economic interests, and also by a government emphasis on decentralization and neoliberalism. Decentralization somewhat counteracts neoliberalism as a determinant of the bureaucratic structure. Decentralization demands more user groups or other citizen organizations, local government groups/committees at community, municipality and state levels, federal

²² Margaret Wilder and Patricia Romero Lankao, "Paradoxes of Decentralization: Water Reforms and Social Implications in Mexico," *World Development* 34 no. 11 (2006): 1977-1995

oversight groups in addition to federal agencies for each sector, and increases in the necessary level of communication and collaboration between entities. Neoliberalism on the other hand, creates an environment in which the market is the primary regulatory force. Bureaucracy within the context of neoliberalism is supposed to foster market stability via the protection of ownership rights, correction of market failures, and creating an environment in which the market is able to smoothly operate. These two forces, along with factors such as needs of rural communities, political climate, and others discussed above, shape the bureaucracy of rural development.

Two federal agencies currently function in collaboration and primarily in rural development. The Secretariat of Agriculture, Livestock, Rural Development, Fisheries, and Food (SAGARPA) is primarily focused on augmenting the productive capacities of agricultural endeavors, especially within the context of developing rural areas through its Program for Rural Development. The Secretariat of Social Development's (SEDESOL) Micro-Regions Strategy focuses on creating and improving rural social infrastructure systems. The two work together and with a variety of other agencies, to manage rural development schemes. The government's goal for rural development is to help those that experience the most political, social, and economic marginalization has significant social and agricultural policy implications. Thus, these two agencies work together to harmonize efforts and reduce inconsistencies.²³

SAGARPA and SEDESOL work with many other agencies to form a comprehensive development scheme. These agencies exert significant influence in each of their specialties within the sphere of rural development. Each component of rural

²³ OECD

development strategies are essential elements of an effective comprehensive strategy, thus each agency plays a key role in development strategy, and must work well together in order to achieve positive results. Agency stakeholders beside SAGARPA and SEDESOL are the Secretariat of the Environment and Natural Resources (SEMERNAT), the Secretariat of Finance and Public Credit (SHCP), the Secretariat of Energy (SENER), the Secretariat of the Economy (SE), the Secretariat of Communications and Transportation (SCT), the Secretariat of Public Education (SEP), the Secretariat of Agrarian Reform (SRA), and others with stakes in rural development.²⁴

The multitude of agencies directly involved in rural development schemes are structured around the strategies of SAGARPA and SEDESOL. Yet, the various perspectives of each agency are incorporated into the overall rural development strategy. The Law for Sustainable Rural Development mandated the creation of the Inter-Ministerial Commission for Sustainable Rural Development (CIDRS), with the purpose of facilitating this horizontal collaboration approach to rural policy development. Although all agencies that participate in the CIDRS have influence in policy creation and the direction of rural development schemes (to varying degrees), SAGARPA presides over the federal CIDRS and is essentially the primary agency authority throughout the policy creation and management processes. Additionally, there are state, district, municipal, and community-level CIDRS or similar commissions that function in a way almost identical to the federal CIDRS, but are oriented to address the specific conditions and needs of the state.

²⁴ PEC

These CIDRSs work together to coordinate government efforts in rural development. Typically, a state-level CIDRS will collaborate with the state government to develop a rural development strategy specific to the needs and conditions of their rural areas. Then, municipal councils, guided by this strategy, will decide on the acceptability of locally proposed projects. Finally, the district councils work as intermediary institutions with the main function of assisting the building efforts of the municipal councils it oversees, and to act as a link between state and municipal administrations. All the while, the federal CIDRS and each agency will oversee progress and provide assistance primarily to the state-level entities, but also at each other level to varying degrees. In order to guarantee vertical participation and exchange between the various levels involved in rural development, each CIDRS contains representatives from organizations at levels both above and below (i.e. a state-level CIDRS will have representatives from each district-level commission, and those from the federal CIDRS). This system is meant to be the main vertical coordination instrument in carrying out the mandates of the Law for Sustainable Rural Development.

An advisory board exists to inform the federal government about the various aspects of rural development. This board is composed of the members of CIDRS in addition to representatives from social and private organizations. The purpose of this board is to serve as a forum for sharing experiences, opinions, and coordinating activities between special groups (i.e. international groups, NGOs, etc.) and between federal, state, and/or local governments. This board also forms working committees with the purpose of creating a concerted vision of rural development efforts.²⁵

²⁵ Ibid.; OECD

Due to decentralization, the power and efforts of the government are highly dispersed, so the federal government, through its CIDRS, publishes an official document called the Special Concerted Program (PEC). It contains descriptions and budget allocations of the main federal rural development programs and is intended to clarify the overall rural development strategy and coordinate the actions of each agency. An important section of the PEC is the “rural budget” which is an aggregate of each agency’s budget allocations for projects rural in scope. Expenditures are grouped into two categories: “productive” expenditures which are generally oriented to increasing the productive capacity of agriculture, and “social” expenditures such as those to alleviate poverty, education, health policies, and other social infrastructure systems. This accounting method reveals three important aspects of the Mexican rural development strategy. First is productive investments (which encompasses a large amount of physical infrastructure) are considered separately from social infrastructure development. Second, the majority of productive investments and improvements to physical infrastructure are focused around agriculture. Third and most importantly, high repetition within rural development programs indicates failure to coordinate agency actions within an effective development strategy.

Problems Within the Bureaucratic Structure

The effectiveness of the multitude of institutional coordination mechanisms is fairly poor. The federal CIDRS has failed to draft a comprehensive rural development strategy. This has resulted in redundant programs headed by different agencies that have overlapping goals and dynamics. Although the PEC contains a cross-agency analysis on public rural expenditure, it is simply an accounting tool and does not coordinate or direct

agencies in their rural development strategies, although its purpose is to do so. The failure to coordinate the bureaucracy involved in rural development has resulted in massive inefficiencies, unsustainable economic activities, and an ad hoc rural development environment that will surely result in a number of perverse outcomes including continued wealth polarization, development of unnecessary services or unsustainable industries, and constitute a large loss in sunk financial and human resources. Coordination within the bureaucratic structure is critical, within the context of decentralization, to create a coherent rural development strategy.²⁶

The ad hoc and disorganized federal environment surrounding rural development strategies has resulted in discrepancies between productive and social spending schemes, and little real changes to productive expenditures. As mentioned above, productive expenditures are dominated by agriculture, and occur most frequently in the form of subsidies to the wealthiest 10% of farmers.²⁷ Productive expenditures on private goods (such as subsidies) have a severe negative impact on rural poverty alleviation, especially when most subsidies support a small fraction of total farmers. Lopez and Galinato performed a regression analysis across a number of Latin American countries and found that a 10% increase in agricultural public expenditure on private goods (e.g. subsidies) as a percentage of the value of agricultural production is associated with a 2.6% reduction in agricultural GDP growth.²⁸ Additionally, this environment makes vertical coordination between states and entities at the federal level difficult, as the state CIDRSs or governments have to deal with federal agencies individually, which counters the

²⁶ World Bank, ARD PER

²⁷ Ibid.

²⁸ R. Lopez & G. I. Galinato, "Should Governments Stop Subsidies to Private Goods? Evidence from Latin America," *Journal of Public Economics* 91: 1071-1094

efficiencies generated by decentralization. This poor coordination at the federal level also affects horizontal coordination at the state level, as it is hard for states to develop their own rural development strategies when unsure about what they might or might not receive from the federal government.²⁹

Government Failure

The Mexican government has failed to adopt an effective, coherent, consistent, and comprehensive model for rural development. The blame for this problem cannot be assigned to one entity, but many actors with varying roles and across levels of management. The legislature has failed to adopt an effective law for rural development, as it the Law for Sustainable Rural Development outlines broad goals with little consideration to the development of governmental structures designed to carry out actions as a means to accomplish these goals. What actually *has* been specified within the law to carry out the mandates of the law is ineffective. For example, we can return to the analysis of the effectiveness of the CIDRS, a governmental body whose creation was specifically mandated in the LDRS. The organization of the CIDRS inherently weakens the ability of the entity to be effective. Although SAGARPA acts as the chair of CIDRS, it does not hold any real authority over its peer agencies within the commission. Thus, SAGARPA (and effectively the entirety of the CIDRS) cannot force agencies to act in a way consistent with a comprehensive rural development plan. In fact, the extremely horizontal nature of the CIDRS makes it impossible to even develop such a plan, as various agencies with differing interests can simply act on their own interests, without

²⁹ Ricardo Caballero, “On the Macroeconomics of Asset Shortages,” *Massachusetts Institute of Technology Department of Economics Working Papers* no. 06-30 (2006)

having to actually agree with other members of the commission on rural development matters and coordinate with these other agencies (although the purpose of the CIDRS is to foster coordination among agencies).

Due to failures in planning and reluctance to adjust the macroeconomic and institutional framework in order to accommodate the rural development model, the federal legislature and executive promote activities that are inconsistent with the fundamental principles of neoliberalism and decentralization key to Mexico's rural development strategies. As a whole, some components of the institutional structures and policies in Mexico are at odds with neoliberal or decentralization principles. This has, and will continue to result in poor economic development, poverty alleviation, or improvements to quality of life for rural residents. For example, a large amount of public expenditure on rural production comes in the form of subsidies to agricultural producers. This is at odds with a fundamental neoliberal principle, which holds that subsidy should be eliminated in favor of public expenditure on services designed to fix market failures and expand long-run growth factors, such as primary education, health services, or infrastructure development.³⁰

Additionally, full-cost recovery pricing for water in agricultural regions in the north that have recently implemented should improve environmental sustainability, especially water conservation considerations. The implications of this pricing system shed light on the future of the economic structure of the region; the natural resources of the land will not be able to support the high level of agriculture in the north, and the

³⁰ John Williamson, "What Washington Means by Policy Reform," in *Latin American Adjustment: How Much has Happened?* ed. John Williamson (US: Institute for International Economics, 1990)

economic structure must change in order to be consistent with these resource (a change that will come about through the market mechanism via neoliberalism). Government policies such as heavy subsidies, poor water management planning, and heavy emphasis on the promotion of agriculture as the vehicle for rural economic development indicate that the government is unwilling or perhaps ignorant about allowing the market to properly allocate physical and institutional resources, including intertemporal allocation considerations. These government-induced market failures ultimately prevent neoliberal development strategies to be effective in the promotion of economic development as an avenue for improvements to the levels of quality of life in rural areas.

CHAPTER IV

PROJECTIONS

Outcomes if Current Conditions are Continued

The goals of significantly improving quality of life levels and promoting robust rural economies, especially within the context of long-term sustainability, will not be reached within the current institutional framework. Numerous market failures that have arisen from discrepancies within the rural development framework, and between this framework and other fundamental macroeconomic and political management schemes, will not allow the market to allocate resources successfully nor create public funding opportunities to rural areas that suffer from a lack of productive infrastructure services; two of the primary reasons neoliberalism is internationally considered to be an effective development strategy. Additionally, these conflicts within the fundamental structures of the institutional framework will continue to cause organizational problems and create conflicting goals and incentives within and also between agencies, legislative groups, industries, citizen groups, and levels of governance.

Another problem that will limit the goals of rural development is the disorganization of the bureaucratic structure. Agencies with different mandates and strategies for rural development without an authoritative entity to organize the agencies and force collaboration between agencies have created an ad hoc regulatory environment, which magnifies inconsistencies within the legislation. Within the entirety of the planning process, the specific plans for rural development are developed at the bureaucratic level. Because of the large number of agencies with a stake in rural development, and the fact that decentralization has shifted political power to a large number of local governances,

coordination within the bureaucratic structure is an essential element in rural development. Under the current bureaucratic structure characterized by disorganization and conflicting policy arrangements, rural development efforts will be in conflict. Productive infrastructure investment will not occur at a level that will create significant increases to levels of productivity in rural economies.

Unfortunately, the answer to improving the effectiveness of rural development strategies is not simply a matter of aligning the numerous legislative and institutional frameworks of Mexico, and creating an effective bureaucratic structure. A defining feature of democratic systems of governance is disagreement between stakeholders. Simply arranging all aspects of the institutional framework to be centered around rural development strategies is impractical, and does not take into consideration the stances of urban or wealthy stakeholders, a group that holds significant political influence. While one could make an argument that the government holds rural development and poverty alleviation an important goal, infrastructure development and other public expenditures in rural areas inherently diverts limited funding from other groups and sectors, including urban residents and the wealthy. Thus, as a whole these groups will not favor public expenditures in rural development, as they do not directly benefit from these investments. Without the support of these groups, social rural development will continue to occur at a high level through programs like *Oportunidades* and the efforts of SEDESOL. Yet productive infrastructure development in rural areas is unlikely to receive the public support necessary to develop rural economies, a primary factor in increasing the quality of life in rural areas. Thus, many rural areas *would* see improvements to quality of life and economic productivity, but not at levels that the government currently wants to

achieve. Additionally, the inabilities of the government to plan an effective rural development strategy, coordinate government entities, and orient widespread management schemes to support the rural development strategy has, and will continue to result in a number of market failures, including poor market access for rural residents, which limits rural participation and contribution to economic productivity and growth. Another market failure outcome will be poor environmental protection, as the government will fail to allow limited resources to be priced at levels that reflect true scarcity. Yet another is the government's attempts to foster agrarian development in rural areas by subsidizing "prices for energetic fuel sources, such as gasoline and diesel".¹ Obviously in this situation, the government is keeping the market from allocating resources at a level that would promote conservation and sustainable practices. While cheap fuel would foster agricultural growth in the near future, the practice is unsustainable both ecologically and economically in the long run. Over time, rural Mexican economies will be much worse off because at some point fuel sources will be overexploited and scarce, creating very high fuel prices. However, at this point growth in rural economies will have grown to be heavily dependent on agriculture through heavy investment and establishment of both physical and social infrastructures oriented toward a fully agricultural economy. Thus, once agricultural productive inputs become too expensive, rural economies will regress significantly and with them, rural citizens. What more, ultimately all the effort, time, and resources put into developing rural areas around agriculture will be essentially fruitless.

¹ Inter-Secretarial Commission for Sustainable Rural Development, "Concerted Special Program," Office of the President of the United Mexican States (2007): 27

In promoting market allocations of goods and services in some cases, the government currently has poor social infrastructure systems in place to support the development of new industries as major new sources of productivity and employment. For example, full-cost recovery pricing for water, in conjunction with rising prices for other productive agricultural inputs and poor financial support systems for small-scale producers is forcing small-scale farmers to sell land essential to maintain production at a level that will be profitable. The result will surely be the rise of large-scale commercial farms as the sole primary producers of agricultural goods, similar to developed nations with high levels of agricultural production. This type of agrarian system is characterized by high levels of output per worker, which will drive agricultural employment down significantly. This result is in conflict with rural development strategies that attempt to foster agriculture as a primary economic engine for rural development.² A lack of appropriate social infrastructure designed to foster new avenues of economic productivity in these areas will result in an increasingly large number of unemployed and poverty-stricken rural people, a majority of which will relocate to urban centers or emigrate to the United States; a result exactly opposite of the intended goals of the current rural development strategy.

Not only will the government's insistence on agriculture as the primary vehicle for rural development fail within the current framework for areas well suited for agriculture, but also those areas in conditions not conducive to agricultural production will not receive much of the public support necessary to develop different industries. The

² Ibid.; Office of the President of the United Mexican States, *National Development Plan for Mexico 2007-2012*, Government of the United States of Mexico (2006)

rationale behind the government's decision to promote agriculture is somewhat intuitive; most rural peoples practice agriculture, and improvements to the productive capacities of agricultural systems has been shown through multi-national regression analysis to best alleviate poverty. In fact, the OECD published one of the most prominent studies of this analysis and recommends agricultural development as a primary avenue for poverty alleviation (Mexico is an OECD country).³ Yet, the ecological conditions and lack of financial, physical, or other types of productive infrastructure systems in Mexico do not indicate that agriculture will be a worthwhile venture for these regions. As a result, areas other than those in the north will continue to be subject to economic marginalization.

Other Outcomes

Return to Fully Centralized Control

If Mexico were to return to the management strategies of the PRI as seen during period one, with almost fully centralized government control over most aspects of rural development schemes, the economy, and nation-wide management responsibilities, it would not be able to take advantage of the benefits associated with neoliberalism; utilization of the market as a tool to promote efficient allocations of resources, nor those of decentralization as an avenue for tailoring development strategies (or any management scheme in general) to meet the needs and conditions of each region, a necessity considering the heterogeneous nature of rural areas in Mexico. The resulting rural development policies would be similar to those under the PRI; rural development would

³ Dalila Cervantes-Godoy & Joe Dewbre, "Economic Importance of Agriculture for Poverty Reduction," *OECD Food, Agriculture, and Fisheries Working Papers*, no. 23, OECD Publishing

be at odds with market-efficient actions. Perhaps a wave of nationalism/socialism would cause the government to create an equitable system of governance, yet without market considerations, which will ultimately cause this system to mutate into a quasi-market system shaped by ad hoc conditions and governmental preference (such as the agrarian system of period one). Rural development was poorly planned and executed within period one. Additionally, this system of governance promoted shortsightedness and unsustainable practices. Formal and informal economic policies of the time caused economic catastrophe in the long run, and failed to foster technical innovation (the key determinant in long-run economic growth). Overall, it was a waste of time, effort, and resources, and created high levels of marginalization in rural areas while increasing the income gap to one of the largest in the world.

Full Commitment to Market Liberalism and Decentralization

If the Mexican government were to radically reform the economic and political structure of Mexico to full market liberalism and decentralization (i.e. libertarianism), it would suffer a lack of cohesion and coordination at a national level. This would translate into poor economic performance, especially within the context of international trade (a primary engine of economic performance, especially in Mexico). Additionally, it would not allow for social or cultural considerations, as the market would be the sole determinant of allocation within the political economy. Thus, there would be a lack of social infrastructure systems (unless for some reason people decided they wanted to privately fund a public social infrastructure system). Poverty alleviation would not occur, as people born into poverty would not control resources necessary to gain significant

wealth. Perhaps under these circumstances, rural areas might revert to an agrarian feudal system dominated by *haciendas*, as seen in the nineteenth century. Poor national cohesion could also translate into political instability, and might incite violence and secession. However, this arrangement is unlikely to happen due to its extreme nature and obvious faults.

Adoption of Practices Common to Developed Nations

If Mexico were to fully embrace economic and industrial models of a developed nation such as the United States, it would most certainly suffer from the same environmental problems associated with high-consumption societies and traditional infrastructure systems. For example, if Mexico were to fully embrace traditional energy production, it would waste its large reserves of fossil fuels while polluting at a high level and damaging productive regions in the long-run (e.g. polluting agricultural lands).

The economic and industrial models of developed nations are not appropriate within the Mexican context. They are not oriented toward poverty alleviation or rural development, and assume few considerations of benefit distribution as they have developed under market conditions. Supporting infrastructure systems (both physical and non-physical), regional economies, and governmental structures have also developed over time under specific cultural, technological, economic, and social conditions. Thus, these models will not be sufficient to meet the needs of Mexico.

CHAPTER V

ALTERNATIVES

Policy Recommendations

The previous chapter shows that the current rural development strategy, fully centralized control, full commitment to market liberalism and decentralization, or the adoption of common practices in developed nations will not result in Mexico's desired improvements to rural conditions, macroeconomic health, reduce income disparity, nor promote environmental or economic sustainability. Yet, a combination of some choice characteristics of each arrangement can result in an outcome that will accomplish "appropriate growth", which can be defined as development that is consistent with goals of poverty alleviation, quality of life improvement, and economic growth in rural areas, while encouraging sustainable practices through far-sighted policies, coordination, and high situational awareness within the government apparatus.

Current Strategy

The general philosophies and goals of current rural development efforts in Mexico are a good foundation for effective action and beneficial results. The Mexican government is highly aware of problems of rural marginalization, and has developed goals that are consistent with principles of decentralization and neoliberalism, two highly effective tools for development. The "guiding principles" for rural development, as recognized by the federal CIDRS, are: institutional integrity and concurrence for

development, combat poverty in localities with high marginalization and groups of high priority, competitiveness in liberalized trade (especially in the context of international trade), gender equality, environmental protection, recognition of cultural diversity, specialization of functions and elimination of duplications or programs with multiple components [within the bureaucratic structure], joint responsibility for developed [among agencies], and security. Clearly, the Mexican government is aware of aspects and conditions that surround rural development. Yet as explored in the previous chapter, while the methods in which it attempts to address the problems of poor rural conditions and development help to a certain degree in the short-run, they do not lend themselves to achievement of “appropriate growth”.

Decentralization will allow each locality to form development strategies that are appropriate within the distinctive conditions of the region, which is important in this case when considering the heterogeneous physical, social, and cultural qualities of rural Mexico. Thus, rural localities will be able to develop economic activities with competitive advantages on the global level, which is of key importance within the overall economic structure of Mexico, as international trade agreements such as NAFTA provide a large source of national income. Generally, public resources will be allocated toward the creation of productive/physical and social infrastructures that work within distinctive social, cultural, economic, ecological, and physical conditions of each region. Central planning schemes are unlikely to achieve these results. Additionally, transparency and accountability (factors that drive the government to achieve real results) are improved relative to a centrally managed regime due to increased proximity of responsible government parties and constituents.

Neoliberal principles are inherently beneficial to stable economic growth and poverty alleviation, and promote far-sighted initiatives and sustainability considerations, and neoliberalism is appropriate within the Mexican case. It will allow the market, a powerful tool in resource allocation efficiency, to shape economies in such a way as to promote efficiency, sustainability, and widening of the capital stock through creation of appropriate physical infrastructure systems (e.g. development of a fishery in a region with a high fish stock, but poor fishing infrastructure), and investment in social infrastructure systems that are essential to the promotion of well-being and creation of social and economic growth (e.g. education, health care, etc.).

Despite the government's awareness of the conditions surrounding rural poverty and development (somewhat including deficiencies within the government apparatus itself), the steps Mexico must take to develop rural areas (such as economic development through market access and infrastructure development), and its use of neoliberalism and decentralization in rural development strategy, it has created a number of market failures which will ultimately cause rural development efforts to fall far short of their potential benefits and Mexico's goals. This problem of government-induced market failure, and other government failures can be addressed by applying some principles of both increased market liberalism and decentralization, and centralized control.

Lessons from Market Liberalism and Decentralization, and Centralized Authority

These two schemes are inherently opposed; one stresses central government control of most aspects of the political economy, while the other stresses minimal governmental power distributed to local governances and the market as the primary basis

for decisions and resource allocations within the political economy. Yet, aspects of each can be adopted by the Mexican government to improve the effectiveness of rural development efforts.

Market Liberalism and Decentralization

The promotion of decentralization and especially market liberalism will reduce government-induced market failures. If the market is allowed to govern resource allocation without governmental interference, it is likely to shape rural economies and the aggregate macroeconomic structures of Mexico in a way that will promote industries that are sustainable and work well within the various distinctive conditions of each region. This strategy will cause large levels of unemployment and economic turmoil in the short-term; as industries that are too expansive or unfit for existence within a region contract, rises in unemployment levels and declines in revenue streams are almost certain. Yet, in the long-run, economies across Mexico will be more productive and practice more sustainable activities (especially if intertemporal resource distribution is considered in pricing schemes).

The initial economic downturn will cost elected officials political capital, but this loss might be countered by expanding entrepreneurship support programs such as *Opciones Productivas*, and developing other non-physical productive support infrastructures that create avenues for citizens to explore, develop, and build new industries and economic ventures. Currently, there are few alternatives to agriculture in rural areas, and perhaps this is a reason for the government's continued heavy use of subsidy and the promotion of agriculture as the primary engine for economic

development. The creation of diversified economies will alleviate shocks to current economies that are sensitive to international agricultural pricing shifts. Additionally, robust rural economies will create incentives for rural citizens to stay in rural areas and reduce the emigration and urbanization trends. Another strategy to smooth the transition of market reorganization would be to slowly implement changes, as a sudden reform will cause a massive shock to the economy, and have devastating effects on rural incomes that are already low.

Centralized Authority

An economy characterized by market liberalization will create a number of benefits, but natural market failures will undoubtedly arise, such as environmental protection issues from the inability to price intertemporal scarcity, monopolies, pollution externalities, etc. In these cases, it will be the government's responsibility to address these failures. A strong legal framework and bureaucratic structure at the federal level will be necessary to adequately address these market failures, as it will create an environment which promotes active attempts to resolve the issue. Additionally, it will provide lower levels of government knowledge of effective ways to resolve each failure and provide human or financial support. If the government reduces current artificial market failures that occur with high frequency, and are induced by agricultural, economic, or other policies and management schemes, while simultaneously increasing government intervention to lessen natural market failures, the market mechanism will be able to allow for significant economic development in rural areas.

The most significant current market failure in rural areas is the lack of market access. Poor market access isolates economic agents from buying or selling goods, thus not allocating goods to those who might want them most. Additionally, limited resources such as productive infrastructure in rural areas limit the productive capabilities and innovation or industry creation that could greatly benefit the economy as a whole, thus isolating outside markets from potential goods or services they might want to purchase. Other market failures such as monopoly play a large role in limiting the potential for growth in rural areas. As discussed in chapter three, communications infrastructure systems in Mexico are mostly owned by a monopoly, and artificially high communication prices can limit productive capacity by stunting the growth of industries with potential to be profitable that require this service. Additionally, it can affect social infrastructure systems such as education and health care, by making telecommunication education infeasible, or limiting the access of health professionals to medical information.

The most effective way to address natural market failures is through the central federal authority, which needs to hold enough power to enact and enforce legislation designed to force stakeholders to cease activities that create market failures. Smaller government will not be able to effectively coordinate and enforce policies on a national level that are designed to eliminate market failure. Inter-state disagreements over the nature and causes of market failures that affect multiple states or the nation as a whole are sure to ensue.

The large amount of current artificial market failures is due to inconsistencies between development policy and other non-rural and non-development policies. In order to fix these problems, there must be fundamental changes to aspects of a number of

economic, industrial, or political management laws, policies, and agency strategies. These are numerous and inconsistent with many aspects of neoliberalism or decentralization, and must be harmonized in order to reduce market failures caused by government interference for the market to work in a way that will result in significant benefits consistent with Mexico's goals for rural development. The central authority must adopt national laws that are harmonious with each other and the tenants of decentralization and neoliberalism, and force lower government levels to do the same in order to reap the benefits of these strategies. Once the central authority has achieved consistency within its own entities and policies, it will be able to serve as a model for lower levels of government, and also work with lower governments to provide support for the harmonization of each region's government entities and policies.

In order to enforce and develop effective rural development strategies, the bureaucracy must be coordinated. Currently, this does not occur because of the structure of the coordinative body, which does not provide for the chair of the organization to exert real authority over the many agencies involved in rural development. The World Bank has suggested that this capacity should be transferred from SAGARPA to a special agency designed to coordinated bureaucratic activity, or directly to the office of the President.¹

¹ Agriculture and Rural Department Unit of Sustainable Rural Development Unit, "Agriculture and Rural Development Public Expenditure Review," (World Bank Group, 2009)

Lessons from Developed Nations

Developed nations' governmental systems work fairly well to provide services and benefits to citizens. For example, the United State's laws are fairly harmonious, as they were developed under assumptions consistent with each other. Additionally, an effective bureaucratic structure allows for the provision of a great number of infrastructure services for citizens. The US does not have large corruption problems (due to the prevailing political culture), each branch of government does its job reasonably well, and often the government addresses the needs of all groups of citizens. This is the result of many of the factors discussed above, including extensive use of the market mechanism, decentralized governance and high levels of accountability, effective federal governance with consistent national laws, and infrastructure systems that were mostly built according to market conditions and appropriate developmental goals/conditions. Certainly Mexico can take cues from the United States in many of these areas.

While the United States commands respectable economic performance, effective governance, and high quality of life for most citizens, it is subject to a number of problems, and lessons derived from analysis of these issues can benefit Mexico immensely. Institutional structures and infrastructure systems in the US have been developed over a large period of time, and changes to either are met with significant challenges, including political opposition or high technical and economic costs. For example, the electrical grid in the US relies heavily on fossil fuels that create great amounts of pollution, and are unsustainable. Although technology exists to switch to clean and renewable energetic sources, the costs associated with retrofitting the grid to accommodate these technologies and costs of actually producing electricity with these

methods are too high to be politically feasible; citizens are unwilling to pay higher prices for essential goods and services, and elected officials “responsible” for these price increases are subject to losing their seats.

When observing these problems with the “stickyness” or difficulty in significantly changing established institutions and infrastructure, underdevelopment in rural Mexico can be viewed as a benefit. Undeveloped regions in Mexico are not subject to these restrictions to the creation of sustainable or economically sensible infrastructures. In this case, the Mexican government can create incentives for extensive development of alternative energy infrastructure, and other institutional arrangements which allow the market to set prices at levels which promote efficient arrangements.

Further Considerations

Even if all of the above recommendations are accomplished, the fact remains that in Mexico is a democratic system in which high levels of political power are centered in urban areas and among the wealthy, who will not support heavy public investment in rural development, as they receive no direct benefit. In order to gain the popular support necessary for the extensive reforms and investments necessary to accomplish rural development goals, the government might highlight five ways that rural development will actually benefit wealthy and urban groups. First, the development of rural economies will improve the overall macroeconomic health and wealth of Mexico by becoming significant engines of economic activity and innovation. Second, robust rural economies and high quality of life will slow the urbanization process, which many consider to be an increasingly problematic phenomenon. Third, rural development in an appropriate

fashion will contribute to environmental sustainability. Fourth, significant rural development and economic growth will send powerful domestic and international messages. Domestically, success in rural development will be a significant victory for the government, and will indicate the ability of the government to achieve lofty goals, and increase its standing. Internationally, economic and political success in rural areas will translate into better trading opportunities and foreign investment. Additionally, Mexico's international standing will improve and might be increasingly considered as a world leader. Finally, the principles of neoliberalism and decentralization that determine the current rural development strategy are inherently politically conservative, and should be applied to a majority of aspects in Mexican governance (harmonization of law). Not only do these principles reduce wasteful public expenditures, but also they increase the overall macroeconomic health of Mexico.

Lessons Learned From Analysis of the Mexican Rural Development Experience and Global Implications

The Mexican experience in rural development has highlighted four important lessons for development strategies. First, although neoliberalism and decentralization are capable of creating outcomes with numerous benefits, ultimately these positive outcomes will not be achieved without consistency among the multitude of governance schemes that affect rural areas. Often these inconsistencies will create market failures that counteract the market mechanism or are unproductive in context of decentralized governance. Second, coordination within the bureaucratic structures of a nation is a key element in decentralization as a part of development strategy. Bureaucracy that is both horizontally coordinated at each level of government and vertically cohesive between

these tiers promotes effective government action through synergies associated with the cooperation of bureaucratic entities with varying specialties and knowledge of specific aspects of rural development. Third, effective and specific planning must occur in the legislature and the bureaucracy. Without a specific plan for rural development that specifies explicit actions that can be enforced and/or implemented, government action in rural development will remain uncoordinated and rural policies, including development policies, will retain ad hoc qualities that contribute to poor growth and not fulfillment of rural development goals. Finally, social and productive infrastructures should be developed simultaneously as synergies between the two can create large increases to both quality of life and production levels. Of course, this will be impossible without institutions that promote effective planning and coordination in rural development strategy.

As Mexico is the international “laboratory” for development strategy, these lessons have significant global implications. The World Bank and other international groups that recommend neoliberal and decentralized development strategies, and provide financial and analytic assistance to developing countries conditional on the adoption of these principles, must realize that distinctive macroeconomic, social, and cultural conditions of a country, and especially the overall institutional framework of the government greatly determine the effectiveness of these development strategies. Perhaps in the future, in addition to simply financing of developmental aid solely conditional on the adoption of neoliberalism and decentralization in development policy, these international development organizations can include the condition of reformation in the overall institutional framework of a nation to facilitate these principles and their effective

implementation. If not, vast amounts of capital, effort, and time might go to waste through poorly executed governmental efforts and inconsistent project investments, considering the long time frames involved in fundamental institutional structures and infrastructure development and usage. However, the lessons gleaned from Mexico, which is foraging the path in development strategy, will ultimately prove invaluable for future development efforts by nations across the globe.

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