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2006-2012:

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Creating the foundations for equitable growth

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growth

Mexico 2006-2012: Creating the Foundations for Equitable Growth

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PREFACE

The Policy Notes, entitled *Mexico 2006-2012: Creating the Foundations for Equitable Growth*, were coordinated by David Rosenblatt (Lead Economist and Sector Leader), under the general guidance of Isabel Guerrero, Country Director at the time of preparation of the report. Chapters were produced by David Rosenblatt and Roby Senderowitsch (Political Transition); Jozef Draaisma and Juan Carlos Mendoza (Public and Private Finance); José Luis Guasch and Keta Ruiz (Regulation, Competition and Investment Climate); José Luis Guasch and Esperanza Lasagabaster (Innovation Policy); Angela Armstrong, Yewande Awe and Ethel Sennhauser (Environmental Management); Erik Bloom and Gladys López-Acevedo (Human Capital and Skills); José María Caballero, Frederic de Dinechin, Matthew McMahon and Yurie Tanimichi Hoberg (Agriculture, Rural Development and Land Policies); Douglas Olson and Gustavo Saltiel (Water Resources); Enrique Crousillat and Juan Carlos Quiroz (Oil and Gas); Luis Alberto Andrés, Angélica Núñez and Anna Wellenstein (Infrastructure); Andrew D. Mason, Maria-Luisa Escobar, Gladys López-Acevedo, Marcela Rubio Sánchez and Jaime Saavedra (Strengthening Social Protection). The “Overview” chapter was prepared by David Rosenblatt, but it benefited from detailed inputs, comments and suggestions from the entire team and from Isabel Guerrero. Please note that these chapters were written during October and November of 2006, and thus they relied on the information base available at that time.

Additional team members included Odracir Barquera, Gabriela Aguilar, Andreas Blom, Anna Corsi, Fernando Galeana, Rocío Lavalle, Takako Mochizuki, Mireya Olivas, Alexis Roach, and Alexandra Zenzen.

This Report was produced in a highly participatory manner. A series of consultations were held with numerous Mexican experts and stakeholders from Political Parties, the Executive and the Legislative Branches, Academia, among others given their rich knowledge of priority issues in Mexico.

The team greatly benefited from the comments provided by the peer reviewers: Enrique Cabrero, Santiago Levy, Lant Pritchett and Michael Walton. World Bank staff who participated in the review meeting also provided invaluable comments.

The World Bank’s Vice President for Latin America and the Caribbean is Pamela Cox; the Country Director for the Mexico and Colombia Unit is Isabel Guerrero; the Sector Director for Poverty Reduction and Economic Management (PREM) in Latin America and the Caribbean is Ernesto May; the Sector Manager of Economic Policy Latin America is Mauricio Carrizosa; and the Sector Leader for PREM in the Mexico and Colombia Unit is David Rosenblatt.

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Mexico 2006-2012: Creating the Foundations for Equitable Growth

OVERVIEW

David Rosenblatt¹

1. **Mexico has undergone a dramatic political, institutional and economic transformation over the last two decades.** The political system has evolved towards open and highly competitive elections, decentralization of the public sector has progressed, some sectors previously controlled by state owned enterprises were privatized and barriers to international trade were substantially reduced. Sector reforms have resulted in expanded coverage of basic social services such as education and health, and the macroeconomic and trade reforms of the 1990s have established Mexico as a stable and more open economy.

2. **Despite this progress, there is still an economic development puzzle to be solved.** A newcomer to Mexico might read the basic facts and figures and note the following. Mexico is the sixth largest producer of petroleum in the world. It is a founding member of the North American Free Trade Association (NAFTA). The country enjoys a privileged geography: two ample coastlines and a border shared with the world's largest economy. While oil reserves are diminishing, Mexico possesses other natural resources in abundance. It also is famous for its rich cultural tradition, an important asset for its substantial tourism industry. **So, with all these benign features, why has Mexico's level of economic development failed to approach the level of its NAFTA trading partners, or the level of a typical OECD member state?**

3. **The chapters, or "policy notes," of this report are dedicated to trying to solve parts of this puzzle.** Like many puzzles, the pieces are interlinked and we may not have completed the picture in every dimension. It has become a tradition at the World Bank to prepare a set of "policy notes" during political transitions. In 2000, the World Bank prepared a comprehensive set of notes that were published in 2001 under the heading *Mexico: A Comprehensive Agenda for Development for the New Era*. Economies evolve gradually and reforms necessarily take time to be implemented. As a result, much of the analysis and a number of the recommendations of that report remain valid today. Each chapter of this new report uses the 2000 policy notes as a reference. In this report, we have tried to be selective on the issues, and we explored multi-sector issues by joining themes like education and labor markets in one chapter, or health and old age security in a single chapter.

4. In this overview, we set the stage by outlining the common themes and messages that emerge from the eleven chapters of this report. There are three themes that we highlight:

- ❖ ***Mexico can do better.*** Economic growth could be much faster, given the natural attributes mentioned above. Poverty reduction could be much faster, and faster growth and poverty reduction are mutually reinforcing. Economic and social policy

¹ The overview chapter was based on material from all the other chapters of this report, and the thematic discussion evolved from a dialogue with the authors of the various chapters and with the guidance of the World Bank's Country Director for Mexico and Colombia, Isabel Guerrero.

reforms that could improve the situation have been blocked by interest groups that prefer the *status quo*.

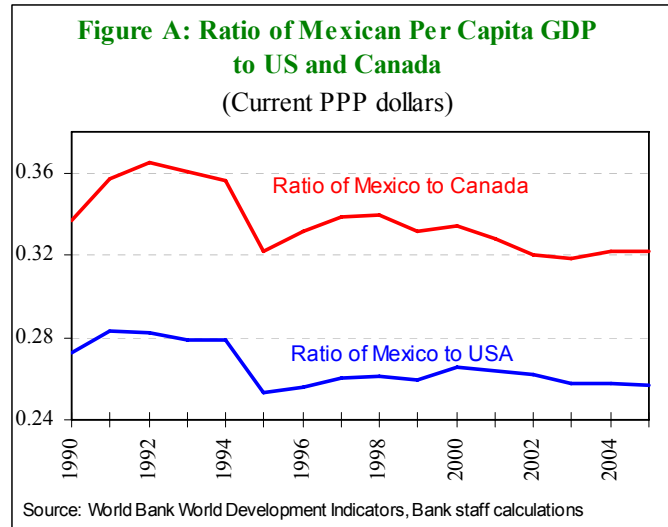
- ❖ ***Mexico is between two worlds and there are two worlds within Mexico.*** Mexico's standards of living, human and physical capital and institutions are all quite advanced compared to low income countries or compared to lower middle income countries in Latin America. On the other hand, Mexico lags far behind OECD averages. Within Mexico, there is a further dichotomy due to the high degree of inequality across individuals and across regions.
- ❖ ***Policies for equitable growth are the answer.*** The new administration is developing a long term vision of Mexico in the year 2030. Equitable growth--growth shared broadly by members of society--could transform the country over the coming decades. In the chapters of this report, we emphasize that institutional change is the key to improving the regulation and performance of both the public and private sectors. We also highlight that restructuring government spending in a variety of sectors—in particular, establishing a more progressive allocation of spending—would be the key to initiating a phase of more growth and more equitable growth. Finally, we note that despite progress in improving economic and environmental stability in Mexico, there is still a remaining agenda of reform to assure sustainability.

5. Each of these three themes is discussed in more detail below. We will then provide a summary of each of the chapters, and explore in more detail the policy dimensions of each area.

Mexico can do better

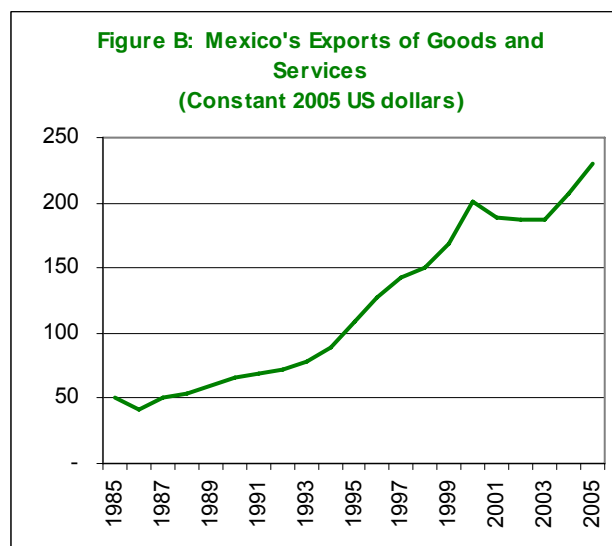
6. **Following the 1994-1995 crisis, Mexico has experienced much more stable and generally positive economic growth.** Growth accelerated in 2006, and hopefully this favorable trend will continue. It should be noted, however, that a number of external factors have contributed to these outcomes. Oil prices have been at record levels in recent years, and the United States' economy and the global economy overall have been growing steadily since 2002. In spite of this, GDP growth averaged less than 2 percent over the 2001-2005 period. In per capita terms, growth was about half that rate.

7. **There is fundamental fragility in this stable and modest growth pattern.** Improved fiscal outcomes have been accompanied by increasing dependence on oil related sources of income. The latter have now reached nearly 40 percent of government revenues. Meanwhile, proven reserves of the national oil monopoly represent only about eleven years of current production levels. Unless there is a substantial increase in investment for exploration and discovery of additional resources, this sector of the economy will enter into decline. If this negative scenario is realized, and the government's dependence on these resources is not resolved, then fiscal sustainability will be compromised. In addition, the two problems are interrelated in that the heavy fiscal burden on the national oil company's revenues limits the firm's ability to invest in exploration.



8. Over the medium-term, growth has *not* been high enough for Mexico’s economy to converge to the income per capita levels of its NAFTA trading partners, as can be seen in figure 1. From this relative perspective, there really has not been any progress over the last fifteen years.

9. In figure A, one does observe an increase in Mexico’s GDP per capita relative to Canada and the United States following the macro-financial crisis of 1994-1995. This period coincides with the initial years of NAFTA. **NAFTA did lead to soaring exports; however, the initial boom leveled off**, as we can see in the figure below. The challenge is to enact the productivity enhancing reforms that set the stage for greater export expansion both to NAFTA and other destinations.

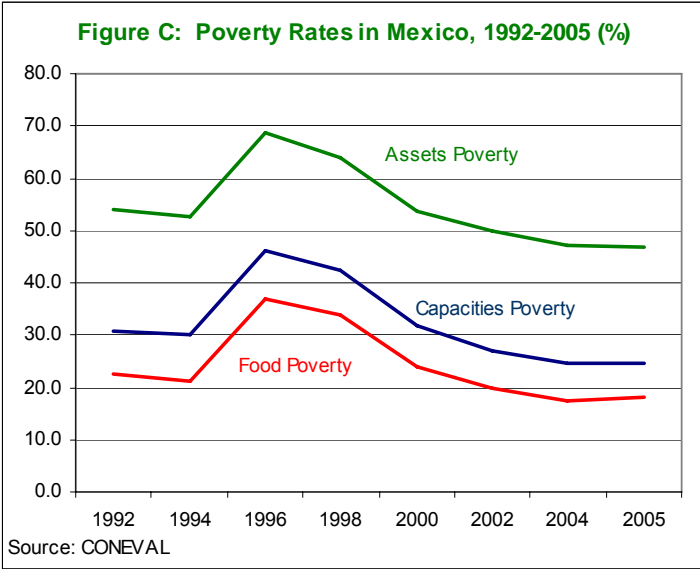


Source: Banco de México; Bank staff calculations.

10. With regards to poverty reduction, Mexico has finally reversed the dramatic impact of the economic crisis of the mid 1990s. As we see in figure C below, poverty rates have now

come below the level reached before the crisis; however, the preliminary estimates for 2005 show that additional progress has stalled. There was no statistically significant change in the poverty rate between 2004 and 2005. In rural areas, there was even an increase in the poverty rate in 2005. More vigorous growth is now essential for further gains in poverty reduction, and over the medium term, there are a variety of microeconomic reforms and improved service delivery for the poor that could increase the poverty reducing impact of growth.

11. **Factors that have contributed to the reduction of poverty (particularly extreme rural poverty) since 2000 include sustained macroeconomic stability, low inflation, increased targeted government transfers, and income diversification into non-agricultural activities.** Social programs such as *Oportunidades*, *Procampo*, and, to a lesser extent, remittances from abroad have contributed to this reduction. On the other hand, poverty rates in the urban sector have not improved significantly due to low returns to labor (in self-employment and wages) and high under-employment.



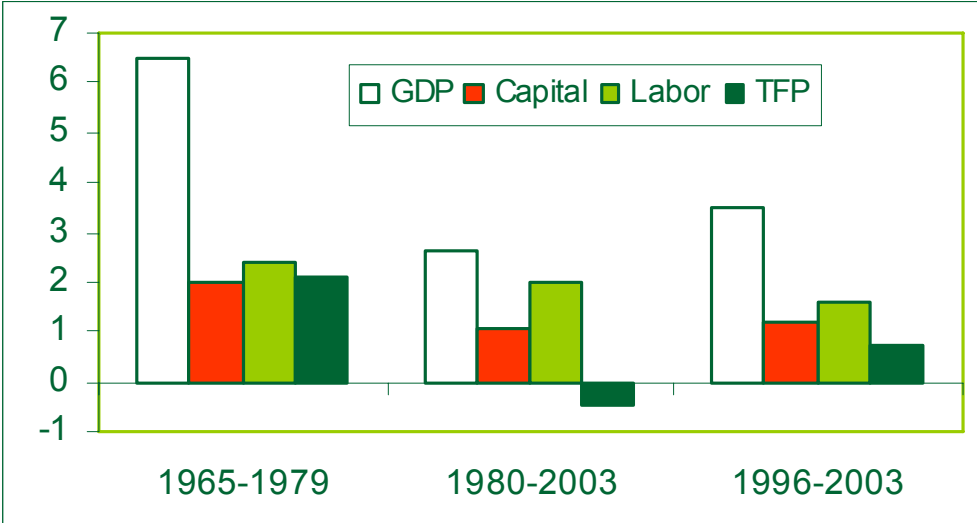
12. **In urban areas, real wages for the extreme poor have declined since 1991, and even though pay levels have recovered since 1996, the improvement was not sufficient enough by 2003 to regain the value lost since 1991.** However, real wages for the poor are recovering above pre-crisis levels due to the positive growth of the economy in the last year in several sectors of the economy, including *maquila* processing and services. In rural areas, lack of sufficient dynamism in the small-scale farm sector, concentration of growth in the more commercial sector, and limited access to high-return jobs in the rural non farm sector are key factors in explaining stagnant income growth for the rural poor.

13. **At the root of slow growth and lagging wages is the fact that productivity in Mexico has hardly grown over the last fifteen years.** Total factor productivity (TFP) has expanded at an annual average pace of less than 1 percent during the late 1990s and early 2000s, as displayed in figure D below. At least this reversed the negative trend of the 1980s to mid 1990s. Increases in capital per worker and increases in the human capital per worker (i.e., skills level) raise living standards. Over the long term, however, productivity improvement is the foundation for the

creation of good quality jobs and the foundation for successful enterprises in an increasingly competitive world. It is the foundation for growth beyond the accumulation of physical and human capital.

14. Total factor productivity is an aggregate measure that comes out of the national accounts. **To understand the policy levers for improving productivity, one needs to drill down to the microeconomic factors that impact productivity.** We propose four main issues to be addressed in the Mexican case, based on the Bank’s past analytic work in a variety of areas.² First of all, there are utility monopolies, some privatized and others still owned by the public sector that provide high cost services by international standards—e.g, telecoms and electricity. This inhibits the productive efficiency of firms that use those services. Second, infrastructure links provide productivity gains from the shared use of these links. Mexico lags in international comparisons in this front. Third, there is the administrative burden of operating a business that both inhibits new start-up companies, but also adds costs to existing firms. Finally, there is the technology itself that is being used: either imports of more advanced equipment or the development of domestic technology can improve productivity of firms. We now turn to evidence that Mexico could perform better in each of these areas.

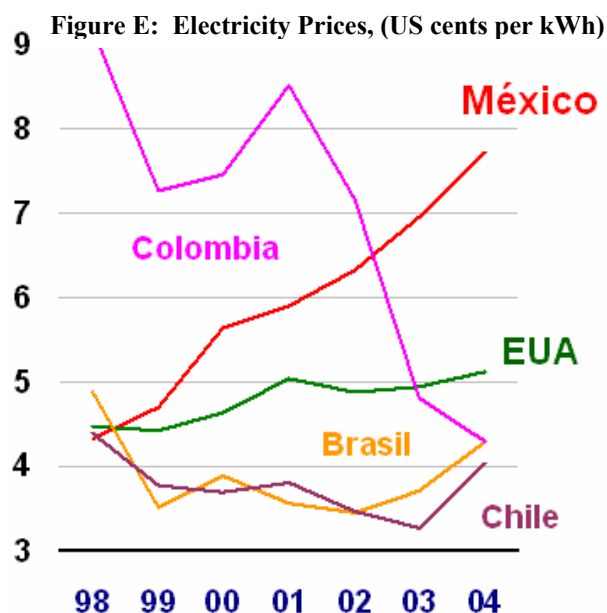
Figure D: Growth Accounting, 1965-2003



Source: Faal (2005), as cited in World Bank, 2006, Mexico Competitiveness Report.

² See, for instance, the World Bank’s Mexico Competitiveness Report (in particular Annex 1 with the growth diagnostics), and the World Bank’s Infrastructure Public Expenditure Review.

15. There is evidence that some public service costs are limiting firms and workers in their quest to produce goods more efficiently. A clear example is from the electricity sector—a key input for many businesses. Not only is the price in Mexico above international comparators, but also the price has risen in recent years, as revealed in figure E. **The electricity sector is but one clear-cut example of where Mexico could perform much better.** In telecoms, similar comparisons of the cost of the service in Mexico present a similar picture.



Source: Consejo Coordinador Empresarial (CCE)

16. One can view the combination of infrastructure and administrative burdens through the results of recent study of export performance in Mexico. The authors found that a combination of improving port facilities, providing greater access to service infrastructure (e.g., e-commerce) and regulatory reforms could boost Mexico’s exports dramatically (Table A). More specifically, the authors’ analysis simulates the impact of trade facilitation reforms that would allow Mexico to halve the distance between its current score and the world average (75 countries) along 4 variables, as follows: 1) port efficiency; 2) customs environment; 3) regulatory environment as measured by the perception of corruption; and 4) service sector infrastructure as measured by speed and cost of internet access and effect of the internet on business. **The simulated impact below is substantial, showing clear empirical evidence of how productivity losses through inadequate infrastructure and administrative/regulatory burdens impact export growth and hence economic growth.**

Table A: Impact of infrastructure and regulatory reforms on Mexican exports, simulation.

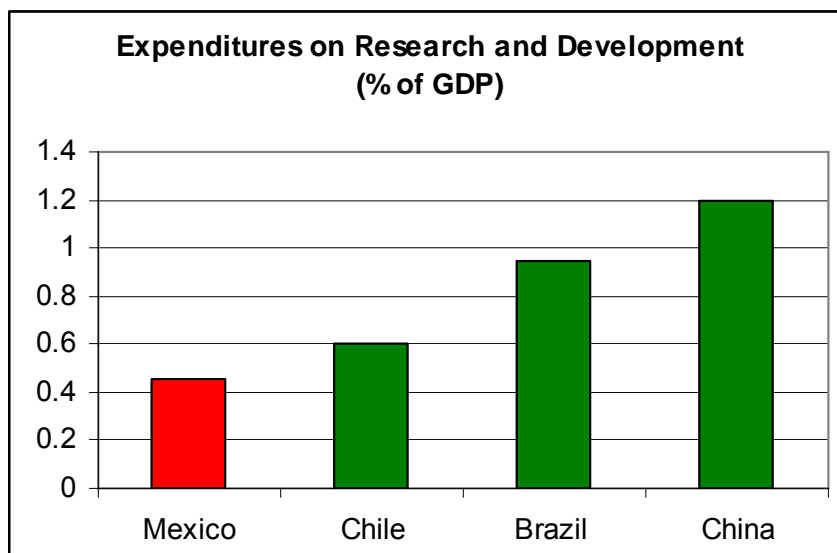
	Port Efficiency	Customs Environment	Regulatory Environment	Service Sector Infrastructure	Total
Export gains (\$billion)	6.8	8.0	10.5	2.1	29.3
Export gains (percent)	4.8	5.6	7.4	1.5	20.7

Note: Corruption is used as a proxy to measure Regulatory Environment. Service Sector Infrastructure is measured by e-commerce use by businesses.

Source: Soloaga, Wilson, and Mejía (2006), as cited in World Bank’s Mexico Competitiveness Report.

17. Finally, in the area of innovation, several salient features emerge. One is the low level of overall research and development expenditure in Mexico as a share of GDP, as revealed in the figure below. Secondly, is the focus on basic rather than applied research. Third is the low level of cooperation between research institutions/universities and private sector firms. These issues are discussed in more detail in chapter 7.

Figure F: Expenditures in R&D



Sources: CONACYT (2004), OECD (2004) and RICYT (2004).

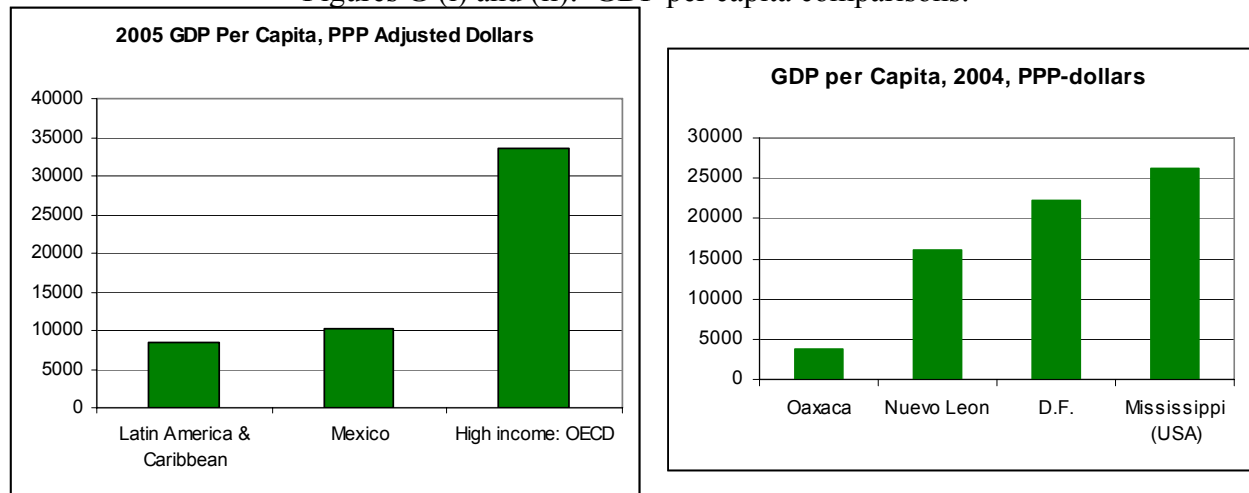
18. There are a variety of factors that need to be addressed to improve growth. We can think in terms of the factors of production, along the lines of the growth accounting mentioned above. First there is the need to accelerate human capital accumulation. This can only be achieved by expanding both the coverage and quality of education for Mexican across the income scale. Second, increase the quantity of quality of public infrastructure along with improving the incentives for physical capital accumulation. Third, Mexico could make better use of its abundant natural resource assets, and making better use implies sustainable use. Fourth, and perhaps most importantly, is the need to improve total factor productivity, along the lines of the four areas discussed above. One of the benefits of productivity improvements is that it can help Mexico diversify the destination of its exports away from dependence on the United States' market. While the United States is the largest market in the world, it is certainly not the fastest growing market. Asia, and particularly China, is experiencing much faster rates of economic growth. New products or modifications of existing products, along with establishing stronger business links with Asia, could enable Mexico to take advantage of this region's dynamism.

19. There are other factors that impact productivity and equitable growth. The organization of the production process is based on market institutions and the rules that govern those institutions. Those rules are established by political institutions. Competitive, transparent political institutions are more likely to be able to adapt to the needs of a more dynamic economy. Finally, as we will see in more detail below, the equitable distribution of all these processes of accumulation and productivity gains is another concern in terms of maximizing gains and assuring sustainability of those gains.

Mexico is between two worlds and there are two worlds within Mexico

20. Across a wide variety of measures of social and economic progress, Mexico lies between two worlds and there are two worlds within Mexico. Starting with the broadest measure, GDP per capita, Mexico is clearly above most developing countries and the regional Latin America average.³ On the other hand, the gap in GDP per capita between the richest and poorest states in Mexico is larger than the gap in GDP per capita between the richest Mexican states and the poorest states of the United States. The pattern holds to some extent in income poverty measures. Although state by state comparisons of poverty are difficult, there is a clear difference between rural and urban areas. Extreme poverty in rural areas is 2.5 times greater than in urban areas of Mexico. Another clear division is between indigenous groups and the population at large. From household survey data, there is a close association between the poorest municipalities in Mexico and the municipalities with the highest share of indigenous peoples. The challenge is to close the gap between the two worlds. Productivity gains for growth are essential, but there needs to be policies help all of Mexico participate in this process.

Figures G (i) and (ii): GDP per capita comparisons.

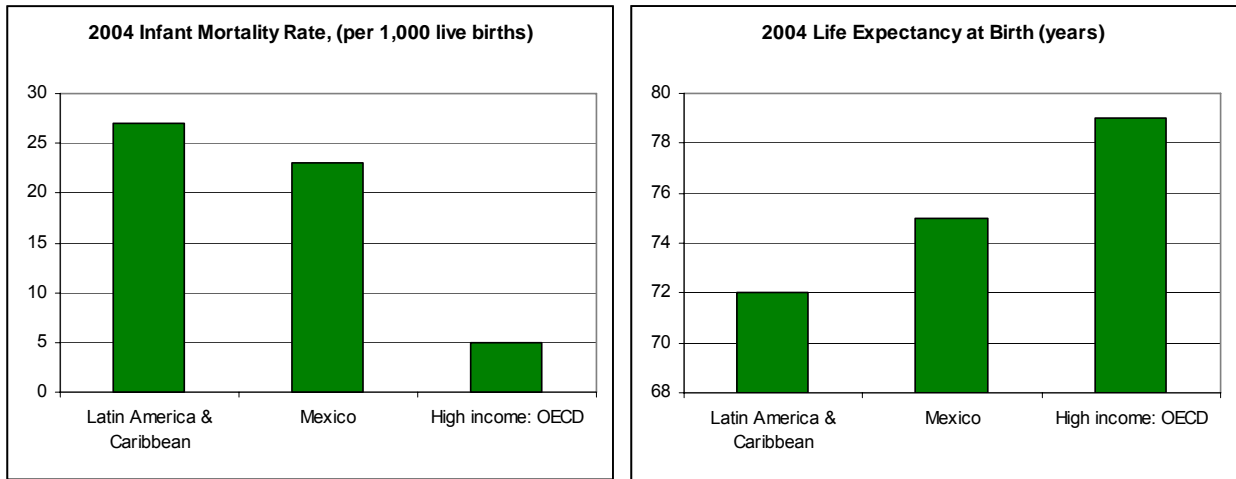


Sources: World Bank—World Development Indicators, 2006; INEGI; US Bureau of Economic Analysis.

21. In other non-income measures of well-being, there is more evidence that Mexico is between two worlds. The health care system produces results that place Mexico above Latin American standards but far below OECD standards, as we can see in the figures below.

³ The comparative figures are in dollars adjusted for purchasing power differences across countries. Note that the state level figures above use the national average PPP (purchasing power parity) factor. This may overstate the level for jurisdictions like DF or Nuevo Leon in that a regional level PPP would like be smaller.

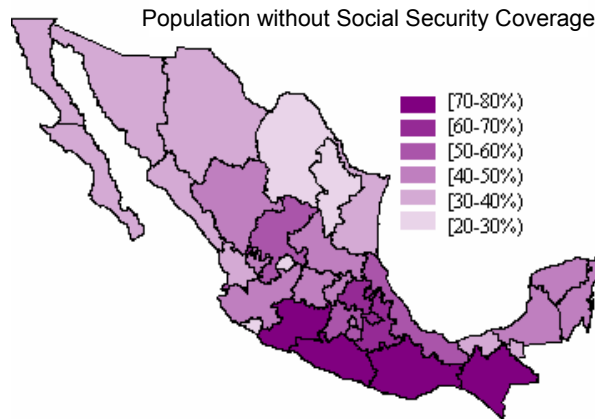
Figures H (i) and (ii): Health outcomes in international perspective.



Source: World Development Indicators 2006.

22. **These health outcomes are a natural consequence of a social protection system that produces dichotomies.** Some workers have access to superior health care and to relatively generous pensions, while informal sector workers use either the local public facilities or whatever limited private health care they can afford to purchase. The percentage of the population covered by formal social security is lower than other countries of similar average income levels, and we can see in the map below that coverage varies dramatically across Mexico.⁴

Figure I: Social Protection Coverage Across Mexico



Sources: World Bank staff estimates, *Conteo de Población y Vivienda 2005*.

23. **The diversity of social protection coverage is driven by employment status.** In brief, much of the inequality that creates two worlds within Mexico is due to differences in labor income. The dichotomy begins with those who are in formal employment and those in the

⁴ Figure 9 is based on pension coverage rather than health coverage. Due to the link with employment states, the pension coverage is fairly representative of health coverage as well.

informal sector. The former is accompanied by access to health and pension programs through the national social security institute known as IMSS. Then, there are other differences: the actual employees of IMSS have a different quality of social protection than the private sector employees enrolled in IMSS. In general, public sector employees have access to the national ISSSTE social security institute which brings, on average, better quality health care and more generous pension benefits. Finally, those workers who belong to unions—including public sector employee unions—are able to secure greater bargaining power both for influencing wage and benefit packages and for influencing policy decisions that might impact their job or income levels. Even across unions, the members of some particular unions have the highest wage and benefit packages of all.

24. **In education, thousands of Mexicans graduate each year from excellent universities both inside Mexico and abroad. Meanwhile, average education levels lag far behind the higher performing countries in the world.** The table below provides an illustrative example, since it compares Mexico with eastern and southern European countries and Korea which are not at the highest end of the global income scale. We see that the percent of the population with a tertiary education is at a similar level (with the exception of Korea): this is the highly educated world within Mexico. On the other hand, secondary enrollment rates and average educational attainment both lag badly behind the comparator countries. From an equity perspective, this issue has become even more important since the start of NAFTA, as the skills premium has grown.

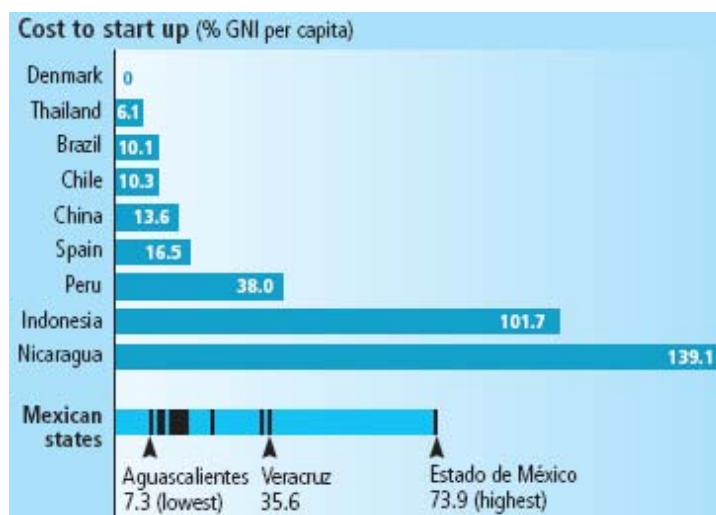
Table B: Education indicators, Mexico and Selected Countries

<i>Country</i>	<i>Gross National Income</i> <i>per capita PPP</i> <i>US\$</i>	<i>Secondary Net Enrollment Rate,</i> <i>% of age group</i>	<i>Population with tertiary education</i> <i>% of age 25-34</i>	<i>Average Education Attainment,</i> <i>population age 25-64</i>
Slovak Republic	\$15,760	87	13	12.4
Poland	\$13,490	91	20	11.6
Hungary	\$16,940	92	17	11.7
Czech Republic	\$20,140	89	12	12.4
Greece	\$23,620	85	24	10.5
Republic of Korea	\$21,850	100	47	11.9
Mexico	\$10,030	60	19	8.7

Source: See chapter 7 of this report.

25. **Public and private sector governance are also represented by two worlds.** Some states produce regular reports on public spending and public contracts on their internet sites. Others struggle to produce basic accounts according to national Mexican norms. In terms of state level regulations that impact the business climate, again there is a wide diversity across Mexico. The figure below reveals that, in some Mexican states, the cost of starting up a firm is lower than many international comparators. Meanwhile other states trail far behind those same comparators.

Figure J: Cost of starting a business.



Source: Doing Business 2006.

26. **In Mexico's financial markets, complex transactions in sophisticated financial derivatives occur every day.** Meanwhile, overall credit to the private sector is less than 20 percent of GDP, far below the level of countries like Brazil and Chile. There are two worlds of access, as well. Only 24 percent of residents of the Federal District reported having savings account. Tremendous progress has been made in recent years in expanding the housing finance system in Mexico; however, very little of that expansion has reached into the lower deciles of the distribution of household income.

27. **And more examples of the two worlds are found across a wide spectrum of activities.** In the realm of natural resources, there are those who rely on the quality of the environment (in tourism, for example) for economic survival and those who pollute the environment as part of their economic endeavors. There is the great difference in water scarcity between northern-central states and the southern states. In the infrastructure sector, there are the large subsidies that accrue to mostly large and wealthy producers while many indigenous communities in rural areas lack basic services.

Policies for equitable growth are the answer

28. **Mexico can close the gap between the two worlds.** It can attain the average standards of living of other OECD countries while also closing the inequality gap within Mexico.

29. **Economic and social policies, enacted via government regulation and spending, are formulated through political institutions.** In all political settings, interest groups attempt to influence these policies in their favor. Throughout Mexico's history—with the domination of a single political party—certain alliances of interests emerged, and the relative power of these groups remains strong today. It is beyond the realm of this report to analyze these complex relationships; however, it is clearly established that unfavorable economic outcomes result in those cases where economic regulation secures substantial profits for monopoly firms with substantial costs to the economy as a whole. Some data on these outcomes were presented above, and these issues are explored in more detail in chapter 3. Institutional reforms, along with maturation of the democratic process over time, can reduce the likelihood of interests winning these political battles.

30. **Poverty reduction is a function of economic growth and inequality.** Targeted poverty programs, like Mexico's pioneering *Progres-a-Oportunidades* are absolutely essential in two ways. First the program addresses the immediate income needs of poor families and, to this extent, it reduces inequality. Second, the conditional nature of the programs, focusing on continued school enrollment and regular health assessments, provides the foundation for changing the dynamics of poverty and inequality over time. At the same time, the microeconomic agenda for unleashing productivity and growth is equally essential. The combination of both well-designed, targeted programs and productivity enhancing reforms can create greater economic opportunities across the income scale. As noted in a recent World Bank regional study, with this combination of policies, one can establish "virtuous circles" of poverty reduction and growth.⁵

31. **Why is it so important to think of both the growth and inequality dimensions in all aspects of policy?** Targeted programs for businesses or privileged control of particular markets may seem benign if they stimulate the growth of particular "champion" firms. On the other hand, these policies may impose costs on the rest of the economy, or limit resources available for other programs, and the overall impact may be lower long-run growth for all and greater inequality. Similarly, targeted social programs for the poor—even well targeted ones—may have negative impacts on the incentives for formal employment, if they are not designed with these incentives in mind. This can diminish job opportunities and hence worsen the prospects for poverty reduction.

32. **"Traditional" policy reform prescriptions for Mexico can be addressed from the broader perspective of policies for equitable growth.** In the public debate in Mexico, a number of reforms are repeatedly mentioned as longstanding issues to be addressed: energy sector, pensions, fiscal, labor and "reform of the state." They have been studied, discussed and debated to such an extent that one can almost lose track of the fundamental motivation for considering these reforms in the first place. We would propose here that: (1) they are considered

⁵ Perry et al, 2006, *Poverty Reduction and Growth: Virtuous and Vicious Circles*.

in terms of their contribution to equitable growth; and (2) they should be thought of in a way that improves social cohesion.

33. **Government policies take the form of regulation or spending, and some of these activities affect not only the current generation, but also future generations.** As a result of the latter, the sustainability of spending and regulatory activity, in terms of its impact on future generations is a critical consideration. In reviewing the chapters, summarized later in this overview, one discovers cross-sectoral issues that emerge for the policy agenda.

Regulation and “Governance” for Equitable Growth

34. **Improved regulation of both public and private institutions can enhance equitable growth.** The performance of markets and government agencies is influenced by the rules, regulations and norms that govern them. The effectiveness of these actions is determined by the rules of the game for public sector activity, which we refer to broadly as public sector “governance.” The creation of these rules starts with the political institutions of the executive and legislative branch, and the implementation and enforcement rely upon the executive and judicial branches of government. In some cases, autonomous agencies are established to independently manage particular technical areas of economic policy. In Mexico, a fine example of this is the Central Bank, *Banco de México*, which has managed inflation successfully with leaders who set monetary policy independently from political institutions and whose terms are not coincident with the political cycle.

35. **Democratic consolidation is one of the determining factors for improving governance.** The political system is evolving in Mexico. Elections have become highly competitive and reforms to improve transparency through a freedom of information law and better dissemination of information of government activity are notable. A greater role for civil society oversight would also help, including in terms of tracking the influence of special interests on the legislative process. Over time, improved educational attainment, along with access to relevant information, would also help improve understanding between the electorate and their elected officials. A first step towards closing the gap between the two worlds within Mexico is to close the gap in political influence. This gap can be closed through a variety of measures that make the representative democracy more responsive to the general electorate and less responsive to special interests.

36. **Decentralization is at the core of the governance agenda.** During the 1990s, Mexico embarked on a process of decentralizing more expenditure responsibilities to the state, and to a lesser extent, municipal levels of government. The process has reached mid-stream: states have formal responsibility over major categories of expenditures, like the health and education sectors. States’ scope for action, however, is highly constrained. Employees of the education and health sectors are state government employees, but national level negotiations between the federal government and national labor unions impact wage and benefit packages. National level negotiations even filter down to influence fundamental decisions on who teaches in what school. On the revenue side, states and municipalities are heavily dependent upon intergovernmental transfers, a situation that also limits the scope for action by these governments in response to increasing demands by the state and local population for particular services. This is only a general macro overview of the issue, but we shall see in the chapters of this report that the

decentralization issue arises across sectors: from water basin management to school management autonomy to rural development programs and regulations impacting the business climate. In general, there is a lack of information and few mechanisms to ensure accountability.

37. Under certain circumstances, decentralization also can help close the gap between the two worlds within Mexico. Both theory and experience have shown that decentralization potentially can improve the responsiveness of governments to local citizens, thus leading to improved service delivery. On the other hand, it can also lead to replication of federal level governance problems and a greater disparity of the quality and coverage of government services. The critical criteria for assuring the favorable outcomes are: (1) democratic competition at the state/local level; (2) adequate levels of transparency and governance at the state/local level; (3) effective autonomy in decision making at the state/local level; and (4) some form of fiscal compensation to limit disparities in the level of resources per capita across state and local governments. The various chapters of this report address these criteria in the context of the sectors and programs examined.

38. Due to decentralization, state level governance has reached critical importance. With states managing a much larger share of public sector resources—even within centralized constraints—the quality of governance at the state level matters for public sector performance. While the federal government has implemented important reforms to core public administration functions, like the *COMPRANET* procurement information system, there is the need to expand its use at both the federal and state level to include a greater share of government procurement. There is only limited information published and disseminated on how states perform in relative terms. Clearly, this type of information could be a powerful tool for influencing political leaders to respond to citizens’ demands to improve the quality of public sector performance in the states. To limit corruption, access to information is a powerful tool. Establishing state level legislation and creating state level access to information institutes—state level “IFAI”s—is another powerful tool for improved governance at the state level, and more than half of the states have taken this step.

39. Many solutions will come from state governments’ own experimentation and their own institutional development. A recent World Bank report examined service delivery for the poor in the decentralized Mexican public sector.⁶ It highlighted that not only top-down reforms are required to improve service delivery, but also that there are state and municipal innovations that are starting to occur and that can form the basis for future successful decentralized services. For example, where given the opportunity to control more resources locally through special programs, the interaction of parents, teachers and local school administrators are producing improved educational outcomes.⁷ In order to develop their own solutions, state and municipal officials could use assistance in the form of professional training in public administration and other areas.

40. The reform of state-owned enterprises is another key area of governance, in terms of the functioning of economic markets. The ability of the state-owned petroleum company,

⁶ See World Bank, 2006, *Decentralized Service Delivery for the Poor*.

⁷ See World Bank, 2006, *Mexico: Making education more effective by compensating for disadvantages, introducing school-based management, and enhancing accountability—a policy note*.

PEMEX, to invest during times of historically high oil prices is constrained by both internal management issues and the rules for sharing profits with the government. The latter has been reformed recently and promises some hope for continuing the trend towards higher levels of investment; however, royalty rates remain extremely high. As noted above, electricity prices are high in Mexico, relative to other countries. This is another sector that is dominated by state-owned enterprises. As noted earlier, Mexico's growth potential is seriously limited by the poor performance of these enterprises.

41. **The independence of regulatory agencies can be a solution to improving both public and private sector governance.** International experience shows that truly independent regulators can apply appropriate anti-trust actions and limit the cost increasing actions of private and public monopolies. This can lead to direct economic savings. It also has an indirect effect on the functioning of democratic accountability in that truly independent agencies can give credibility to public sector rule making over the economy. Strong and independent regulatory agencies can help bring the two worlds together through checks and balances over influential interest groups.

42. **A culture of monitoring and evaluation of government programs can also enhance public sector performance.** Mexico has been a leading country in terms of rigorous impact evaluations of specific government programs. Existing legislation requires an evaluation of all programs. A balance can be reached between simple quick evaluations that provide policy makers and citizens with useful information on the results of programs and the more rigorous evaluations that may be conducted periodically to understand the impact of particularly important programs, like *Oportunidades*. Monitoring and evaluation of government programs provides information that improves social accountability. Citizens can play a direct role through the use of scorecards and other techniques to acquire direct information on services users' degree of satisfaction with government services. This is an area of importance at all levels of government: federal, state and municipal.

43. **There are a series of other reforms that can improve "private sector governance" or more specifically, improve the relationship between public sector rules and private sector performance.** With truly independent regulatory agencies, mentioned above, it may be possible to create a more level playing field and increase competition. This would help close the gap between the two worlds via lower costs relative to foreign competition and potentially greater equality of opportunity within Mexico. Recent studies of competitiveness in Mexico have highlighted this issue as perhaps the number one issue for improving competitiveness in Mexico (see chapter 3). Other reforms can improve access to finance: for example, the more effective use of credit reporting registries or property registries. Greater access to finance would bring the two worlds within Mexico closer together. With the federal system in Mexico, business climate reforms at the state level are important to providing better incentives for investment. This was highlighted above in the case of the cost of starting a business, and how this indicator varies across states. The regulation of labor markets also limits the demand for labor, thus reducing the scope for the poor to secure jobs. Finally, reforms to the rules and relationships among businesses, universities and research centers can unleash greater innovation in the private sector. This could help narrow the technological gap between Mexico and the most advanced OECD countries.

Spending for Equitable Growth

44. **Restructuring public expenditure patterns for equitable growth is a second government instrument for enhancing equitable growth.** Across the chapters, the analysis shows that either changing the allocation of public spending or changing the way in which expenditures are administered could improve various sectors' performance.

45. **In the infrastructure sector, we see that switching from reducing regressive subsidies could free up fiscal resources for real infrastructure investment.** This investment could help link the “two worlds” within Mexico and lower logistic costs for Mexican exports. Maintaining current government spending levels on infrastructure at between 1 percent and 1.25 percent of GDP, Mexico would remain around the Latin America average in both infrastructure coverage and expenditures, but it would not reach the level of infrastructure per capita of the other OECD countries or faster-growing East Asian countries. In addition to this gain from expenditure reallocation, there would be improvements in the sustainability of natural resource use, since a portion of these subsidies accrue to irrigation districts in arid zones—thus promoting unsustainable rates of water extractions in some areas. Simulations conducted by the World Bank showed that electric subsidies are so regressive and so large that if one adds together both these subsidies and the highly progressive *Oportunidades* program, the sum of the two programs is neutral in distributional terms.⁸ **Another potential source of funds for expanded and improved infrastructure would be to leverage greater private sector resources for the sector. This would depend more on the governance reforms discussed above.**

46. **In terms of the pension component of the social protection system, a reform of the public employee pension system could generate savings, over the medium-term; however, these “savings” are relative to the projected increase in annual transfers required to continue financing the current system.** The government is currently transferring about 0.5 percent of GDP to cover the pension system deficit of ISSSTE. A current government proposal would create a fully funded, defined contribution scheme, along with a gradual increase in the retirement age.⁹ “Recognition bonds” would be issued that “recognize” earlier contributions and accrued pension rights of the workers transferred to the fully funded system. Projections show that the reformed system in four to five years would already be less costly than continuing with the current system. While not necessarily providing additional resources to reallocate, the reform would prevent future increases in pension costs, as a share of GDP, from crowding other expenditures. We will address this issue again in the sustainability section below.

47. **In education and health, changes in the way spending is allocated could promote better quality services.** In both sectors, spending is primarily supply driven: transfers to states are proportional to the number of teachers or to the existing costs of running facilities. A change in the education finance formula with transfers proportional to students would be a step towards financing the demand side, or the needs of the population. In health, *Seguro Popular* is a step in this direction with the funds following the beneficiaries. These changes in the allocation of spending would be the complement of the institutional changes discussed in the previous section.

⁸ World Bank, 2004, *Public Expenditure Review*, Volume II, Table 2.25.

⁹ This report was written in October-November of 2006. A reform of ISSSTE along these lines was approved by Congress in March 2007.

It would complement more local autonomy for the management of funds at the school level in education and complement an eventual shift towards separating funding from service provision and eventually introducing choice of provider in health services. As noted above, for decentralization to bring the ‘two worlds’ closer together, effective local control of resources and some form of equitable fiscal compensation (e.g., per student or per patient spending allocations) are two requirements. Improved education quality and equitable access are important for closing the gap between Mexico and the richest OECD countries. Children with innate abilities from poor families often do not make it to universities while children lesser innate skills from wealthy families may receive a subsidized university education. In this way, the country does not maximize its potential for human capital development and growth.

48. **There are also cross-sectoral issues in expenditure allocation that can sometimes “slip through the cracks” between sector agencies.** One example is government spending regarding control of air pollution.¹⁰ As seen in Chapter 6, the health cost of air pollution is substantial. Yet to the extent that these costs fall on the portion of the population that relies on public health care facilities, this cost is paid by another agency’s budget. The lowest cost solution to the health problem might be to spend more on air pollution control, but if it is viewed as only a health problem, then the spending might be allocated to the health secretariat instead.

49. **Another cross-sector issue, obviously, is the choice of expenditure priorities across sectors.** In some cases, expansion of coverage or service improvements can be financed from reallocation of efficiency gains within the sector. In other cases, this is not feasible. For example, the public employee pension reform mentioned above is really to limit the growth of budgetary expenditures on that system over the medium-term. To finance expanded coverage among the poor or middle class working in the informal sector, the funds would have to come from a source outside the existing group of government social protection programs: expenditure reallocation or a tax reform.

50. **This leads to a final comment on the other side of the government budget: tax revenues are relatively low as a share of GDP compared to other Latin American countries—not to mention typical OECD levels.** Part of the gap has been provided by revenues extracted from the national oil company PEMEX. With PEMEX as a state-owned company, its finances remain intertwined with fiscal decisions of the central government. In the end, there is a trade-off between expenditures of the central government and investment decisions of PEMEX. This is a fundamental public investment trade-off with implications for fiscal sustainability over time, as discussed below.

¹⁰ One could also view this issue from the perspective of government regulation of air pollution. In this case, the question is the relative cost of this “tax” on the producers of pollution versus the taxes they pay to cover the health impacts of pollution.

51. **Government policies today have impacts on future generations; thus, assuring sustainability of equitable growth is a key concern.** This implies assuring fiscal balances, environmental balances and a social equilibrium over the long-term. Attempts to use public spending beyond revenue constraints to “force” growth or poverty reduction are not sustainable. Attempts to drive growth by over-extracting natural resources are not sustainable. Growth strategies that ignore lagging groups or regions are also not sustainable. Sustainability covers many sectors. For example, prudential supervision of the banking system is important for avoiding unsustainable expansions of credit. There has been much progress in this area in Mexico in recent years, so we will not focus on that sector here. In addition, there are important population pressures in some forested regions; however, here we will focus on just four key sustainability issues: water, oil, fiscal and social – the latter from a regional perspective. **If sustainability issues are not addressed, policies that attempt to close the gap between Mexico and the most successful OECD countries and policies to close the two worlds within Mexico will not achieve their long term goals.**

52. **Surface waters are over-exploited¹¹ when there is not enough water to meet environmental needs (lakes, wetlands, in-stream flows, coastal zone needs), e.g. Lake Chapala. However, the over-exploitation problem is most alarming in the case of groundwater.** The number of over-exploited aquifers has increased by 5 times since the 1970’s, reaching 16 percent of all aquifers in 2001. Groundwater mining is estimated at about 6 Bm³/year, or 21 percent of total groundwater withdrawal (2001). When groundwater is overexploited, the use of this water source is unsustainable, because the portion that is being mined is not replenished. The serious negative effects of groundwater overexploitation include:

- depletion of the resource;
- increasing water production cost (i.e. increasing pumping cost with lowering of the water table);
- land subsidence that is extremely costly in urban areas because of damage to infrastructure;
- decreasing water quality (i.e. salt water intrusion in coastal aquifers); and
- decreasing surface water flows because of reductions in groundwater out-drainage (spring flows) to rivers and streams.

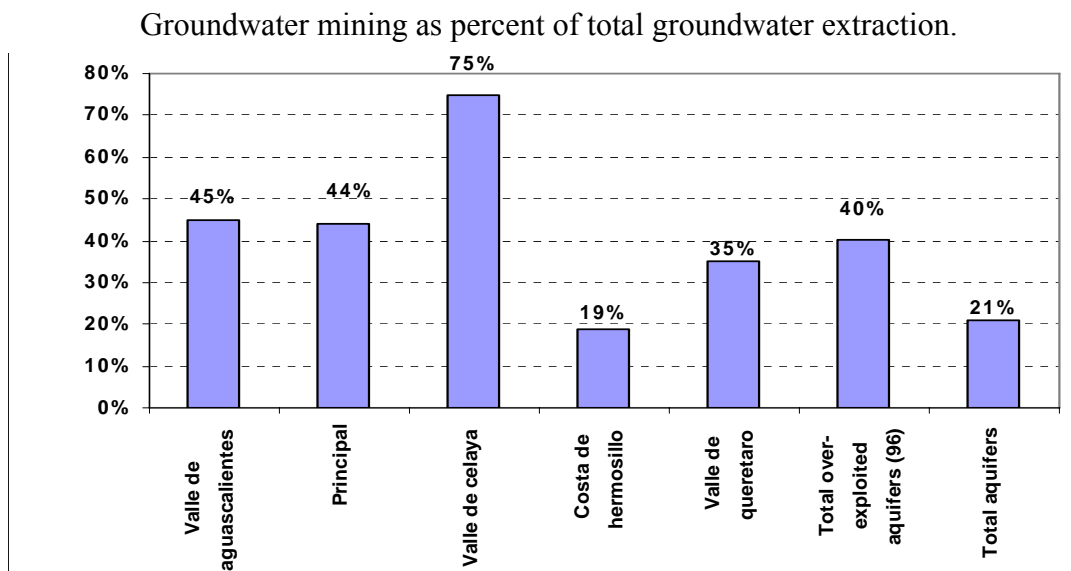
53. In particular regions, the extraction rate is alarmingly high. The following figure reveals this situation. For these regions, the impact on the local population and local economies is a serious concern.

54. **By far the largest water user is irrigated agriculture, much of which is dedicated to the production of low-value grain crops.** In water scarce areas with severe overexploitation

¹¹ Overexploitation is defined as physical extraction rates greater than replenishment rates.

problems there is a strong need to reduce water use in low-value agriculture production. Pricing policies, incentive structures, programs and subsidies need to be restructured towards: (i) supporting sustainable utilization of water resources; (ii) ensuring adequate water for the environment, for domestic use and for economic growth; and (iii) ensuring that the poor are not harmed but instead benefit from the changes.

Figure K: Unsustainable water extraction, selected regions.



Source: See Chapter 9.

55. **Assuming no increase in investment or major oil discoveries, Mexico’s proven oil reserves amount to only 11 years of current production levels.** Clearly, new investment is needed. The most promising areas for future oil discoveries imply higher production costs. PEMEX faces new scenarios in which costs will go up from \$4 per barrel to about \$12 per barrel, in line with costs of deepwater production in the Gulf of Mexico. Although investment in PEMEX has increased in recent years—from US\$5.1 billion in 1998 to US\$7.5 billion in 2000, and then to a record US\$10.8 billion in 2005—, this amount is still not enough to keep current production levels. In recent years, PEMEX’s CEO has warned that Mexico may need to invest US\$18 billion annually to meet future energy needs. Therefore, the country still has to escalate its investment, or provide incentives to attract the necessary funds into exploration and production, and at the same time it needs to guarantee the efficient use of the resources already committed in the sector.

56. **The heavy transfer of resources from the oil sector to the government threatens financial sustainability of PEMEX.** The company’s earnings before taxes turn into losses after Hacienda discounts its share (60.8 percent of total earnings until 2005). In addition, PEMEX is the world’s most indebted oil company with a \$49.9 billion debt, which poses a considerable burden on the company’s capacity to finance future investment needs.

57. **The other side of this equation is that fiscal sustainability is currently dependent upon oil sector sustainability.** Oil revenues of a variety of forms reached 38 percent of federal

revenues in 2005. This dependence casts a shadow over the substantial progress that has been achieved in many fiscal areas: for example, improved budget balance, longer average maturity of the public debt and lower exposure to foreign currency debt. Over the medium-term, non-oil tax increases as a share of GDP would be the only way to sustain current expenditure levels as a share of GDP. Other factors to further support the progress of recent years would be to continue the decline in debt to GDP ratios and enact reforms for public employee pension systems to lower the future profile of payments to those systems.

58. **An additional dimension is social sustainability, and here one may focus on regional inequality issues.** As discussed above, there are substantial regional differences in income levels, social indicators, access to services and the quality of public administration. If some of the improved expenditure patterns mentioned above is focused on addressing infrastructure links and critical social areas in lagging regions, this could help close the gap. In addition, technical support to state governments in lagging states can help improve the quality of services in those states, within existing resource envelopes.

Key policies for equitable growth

59. **One can select from the regulatory, administrative, expenditure and sustainability concerns above to arrive at a list of key recommendations.** The main selection criterion would be the greatest impact on equitable growth drawn from a variety of the evidence discussed above and in the chapters themselves. There is no single model for arriving at these priorities, but a brief rationale for each choice is included in the list. As noted earlier, policies for equitable growth are the answer for closing the gap between the two worlds: both raising Mexico's per capita income and social indicators towards the highest OECD standards and bringing the two worlds together within Mexico by broadening the distribution of those gains across social groups and regions.¹²

60. **Part of the challenge facing Mexican policy-makers is that there are *not* a lot of big-bang reforms that one can enact to make the next leap in development:** from upper-middle-income status to high income status. Instead, there are a variety of long battles to be waged in improving institutional performance, and this is what we see in the chapters of this report. In education, for example, there are a series of interventions on the supply side involving state governments, along with changes in relations with the management of human resources, changes in the financing formula, along with possible expansion of demand side transfers, like *Oportunidades*. In the water sector, there are complex relationships between water rights, pricing policy, institutional development of decentralized water basin management and

¹² During the political transition period, the President-elect selected a group to develop a long-term vision: Mexico in the year 2030. This initiative is an important one, not only for defining long term policy directions, but for reaching consensus on these policy directions and unifying society around a set of objectives. The five areas around which Mexico 2030 is organized are: (1) Rule of Law and Public Safety; (2) Competitive economy for job creation; (3) Equality of opportunities; (4) Sustainable development; and (5) Effective democracy and responsible foreign affairs. This report has focused on the areas where the World Bank has more experience, such as areas 2-4. Another difference in the approach taken in this report has been to emphasize where policies to promote "equality of opportunities" actually have a positive impact on competitiveness and the scope for job creation. We also make the case that "effective democracy," including political reforms, has an impact on the other areas.

municipal water utility management. Again, this is a complex set of institutional issues that can be disentangled; however, it is an arduous step-by-step process.

61. **An additional element that has to be recognized up-front is that there are well-organized interests that struggle to prevent these changes from taking place.** There is the need then to build broad consensus to overcome those interests. One example of a major reform would be a structural tax reform. One way of building political momentum for tax reform would be to start with a careful restructuring of public spending. This would show the taxpayer that the resources he or she sends to the tax agency are used well and managed efficiently. In conjunction with these efforts, it would be important to show that many benefits from the “low tax *cum* high oil dependence” method of public finance actually accrue to wealthy individuals. In addition, one can clearly communicate the links between fiscal dependence on oil and limited investment in the oil sector, along with urgency of the need for increased investment.

62. With these caveats and comments, we suggest eight key policy reforms.

- I. Induce utility monopolies (including *de facto* monopolies) to lower costs and increase efficiency, through implementation of amendments to the competition law, stronger and independent regulation and removal of loopholes such as the excessive use of *amparos*. Chapter 3 establishes the evidence on the extraordinarily high cost of certain services in Mexico, evidence is provided on the economic impact of those costs.
- II. Improve infrastructure for trade, and this can be financed through reducing regressive infrastructure subsidies, such as the *Tarifa 9*¹³ and other electricity subsidies. With governance reforms discussed above, and with the deepening of the financial system, it may also be easier to attract more private investment. Both chapters 3 and 5 establish that Mexico could do better in improving the quantity and quality of infrastructure. This is one of the key areas affecting productivity.
- III. Increase efficiency and viability of oil and gas sectors, either through management reforms, (deeper) fiscal reforms or opening the market. Chapter 10 shows how an important sector of the economy faces decline unless reforms are undertaken.
- IV. Facilitate states’ improvements in lowering administrative barriers that impact the business climate. Chapter 3 also highlights where the key barriers lie. The fact that some states perform better provides inspiration that this success could be shared.
- V. Tax reform to substitute for PEMEX fiscal dependence and (VI below) to finance an improvement of the social protection system. The business climate depends on clear and predictable tax rules and fiscal sustainability. In addition, any additional infrastructure investment (above) or additional social investments (below) that go

¹³ *Tarifa 9* is an electricity subsidy for irrigation purposes.

beyond efficiency savings require a stable source of financing. Reform (III) also depends on this reform.

- VI. Improve the social protection system (financed from V above). Chapter 11 provides evidence of the limited existing social protection system and offers options for reform. It should be noted that protecting human capital is also important for growth, and a possible de-linking of social protection from employment status, as discussed in chapter 11, could also enhance competitiveness and growth. In particular, the design of the social protection system has an important impact on the incentives for formal versus informal employment, with subsequent impacts on worker training and worker productivity.
- VII. Create incentives for more effective use of fiscal transfers for education through school level reforms; accountability at the school level. The upper secondary segment of the education system is where Mexico experiences the greatest gaps with international comparisons. Reallocating transfers to a per capita basis and providing for greater parent-teacher interactions at the school level (AGE and CONAFE) seem to promise the prospect for effective, accountable decentralization. Reallocating transfers and these school level reforms can be the basis for an alliance between teachers, parents, public administrators and teacher unions to focus on the quality of education.
- VIII. Avert the water crisis by changing incentives for water use; new pricing schemes, water rights and implementation of basin management. This is discussed above as the most important natural resource sustainability and the policy options are outlined in Chapter 8.

Summary of the individual chapters

63. **The chapters are organized around a framework for production.** In simple terms, the economy can be viewed a bit like a machine where the quantity and quality of inputs—human skills, plant and equipment, natural resources—are key determinants of the level of output. The other key determinant is the way in which these inputs are put together to make goods, otherwise referred to as “technology.” The “growth accounting” discussed earlier is way of breaking down how much each of these components have contributed to the growth of production over time. Beyond this mechanical analogy, economists recognize that there are other determinants like institutions that impact how all this production takes place: firms rely on market contracts and rely on protection of their property for example. Technological evolution itself depends upon institutions that create knowledge, skills and means of adapting that knowledge to the business world. In addition, in discussing equitable growth, it is not only the quantity of total production is important to society, but also the distribution of that production. It is not just a question of building the production machine, but also improving access to it, and improving poor people’s ability to contribute to production, while also protecting the vulnerable.

64. **Following this approach we organized the chapters into two sections.** First, there are chapters that discuss the institutional, regulatory, financial, social and environmental issues that

cut across sectors or inputs to the production function. Secondly, there are chapters that discuss specific sectors or factors of production—human and physical capital and natural resources--and how they contribute to equitable growth. The chapters are:

A. Overarching Themes: a Sustainable Enabling Environment

1. Political Transition and the Institutional Process of Policy-Making
2. Public and Private Finance for Equitable Growth.
3. Mexico's Regulation, Competition and Investment Climate
4. Strengthening Social Protection in Mexico: Recent Progress, Future Challenges
5. Developing an Innovation Policy to Accelerate Mexico's Growth
6. Environmental Management.

B. Sector Specific Policies for Equitable Growth

7. Human Capital and Skills for a Competitive Labor Market
8. Agriculture, Rural Development and Land Policies.
9. Water Resources: Averting a Water Crisis in Mexico.
10. Oil and Gas Sectors
11. Infrastructure for Human Welfare and Economic Growth.

65. **Chapter 1: Political Transition and the Institutional Process of Policy-Making.** Mexico has undergone a dramatic political, institutional and economic transformation over the last two decades. A major feature of the political transition has been the end of centralized decision making and the rise of checks and balances in a context of increasingly open and competitive elections. This chapter examines how decision making, including the enactment of reforms, has evolved during this period. It provides results on the productivity of the legislative process in Mexico, and cross-country evidence on how political institutions impact policy outcomes.

66. The analysis is based on an Institutional and Governance Review (IGR) conducted by the World Bank over the last year. With competitive elections and “divided government”—i.e., lack of a majority in Congress for the President’s party—there have been claims that legislative “gridlock” has occurred. A review of the number of laws and Constitutional reforms passed reveals that only in the latter case has there been a substantial decline in approvals by Congress. The chapter also examines international evidence on political institutions and policy outcomes. Cross-evidence does not reveal any clear-cut pattern of improved performance by parliamentary versus presidential systems, plural versus proportional legislatures or reelection possibilities. It does show that older democracies tend to have improved performance in a variety of variables.

67. The chapter concludes with suggestions on possible political reforms. Improved transparency and information can improve democratic accountability, including information on the benefits and lobbying activities of special interests. The independence of regulatory agencies can work around the problems of special interest influence on the enforcement of regulatory norms or other economic policies. (The independence of the Central Bank in Mexico is one good example.) Other reforms that might be considered would be the reelection of legislators, as this could enhance party discipline and the “professionalization” of legislators. Over time, improved education levels and poverty reduction can help improve electoral accountability as

citizens can make more informed voting decisions. As noted above, closing the gap between the two worlds within Mexico and improved democratic accountability are mutually reinforcing.

68. **Chapter 2: Public and Private Finance for Equitable Growth.** Equitable growth depends upon the efficiency and depth of the financial system. The public sector cannot plan and implement infrastructure and social programs for equitable growth without sustained financing. The private sector financial system needs stability as the basis for both financing established firms and expanding access. In addition, above the data presented on poverty trends display that the fiscal-financial crisis of the mid-1990s set back poverty reduction by about 8 years.

69. The government finances have improved over the last *sexenio*; however, some vulnerability remains in terms of reliance on oil revenues, discussed above, and indebtedness levels that could still be lowered in order to further raise the sovereign credit rating. Oil dependence has gotten worse on the revenue side. The fact that PEMEX's finances are entangled with the central government implies trade-offs between oil investment and other expenditures. Fiscal "skeletons" remain in the public employee pension system. Reform of public employee pension systems, as discussed above, could limit the growth of expenses to the treasury to cover the system deficit in the future. Reform proposals already before Congress represent a sound and feasible solution to the latter problem. Finally, fiscal space from reducing inequitable spending—like some subsidies—could be used for public infrastructure and social spending. The latter could help close the gap between the two worlds.

70. The government's efforts to consolidate macroeconomic and financial stability and enhance the role of the financial system in efficiently financing the private sector and allocating risks to those better able to bear them have succeeded in solving many of the weaknesses of the financial system that were identified in 2001 during the FSAP. The new Securities Law was a major achievement in recent years. Looking ahead, it seems that the major challenge will be to finalize some of the reforms already in progress and to focus on new goals related to markets development and access to financial services now that concerns for stability have eased. The enhanced use of credit bureaus could improve access to credit by SMEs. Costs could be lowered by introducing more competition via improved incentives: including competition in payment services, and improvements in property registries and the functioning of the judiciary at the state level. In housing, the dramatic expansion of recent years has not reached the lower deciles of the distribution of income. Up-front subsidies combined with market interest rates could be more effective in reaching those groups, as opposed to interest subsidies or directed credit.

71. **Chapter 3: Mexico's Regulation, Competition and Investment Climate.** Growth and productivity improvements in Mexico have been modest in recent years and Mexico's competitiveness has been weak—underperforming—relative to per capita income. This has implied lost opportunities for poverty reduction. This chapter draws on a World Bank competitiveness study completed in 2006. One major problem, as mentioned above, is that Mexico has some of the highest cost utility services in Latin America and in the OECD driven by monopoly companies. In telecoms, Mexico has the most expensive business, international and internet broadband DSL rates amongst OECD countries. Water is another sector where state control of water rights is distorting efficient resource use (discussed in chapter 9 below). There is a systemic problem of regulatory failure across sectors.

72. The legal framework for competition has improved through the Amendment to the *Ley Federal de Competencia Económica*, and this was noted in the 2007 Doing Business report; however, there is a long way ahead in terms of effective implementation. A reform priority is to improve the autonomy and effectiveness of sectoral regulatory agencies: establishing regulatory “teeth” for CRE (the energy regulator) and COFETEL (the telecoms regulator), and the careful application and effectiveness of the competition law through the Federal Competition Commission. Another complementary reform would be the removal of loopholes such as the excessive use of injunctions, or *amparos*, which short-circuit the legal system.

73. Other key areas identified were: (1) administrative regulations that impact the business climate; (2) education; and (3) trade facilitation/transport logistics. In the first area, it would be critical to continue streamlining business registry processes and other legal administrative processes at the state level. In terms of business registry processes, initial success with SARE should be expanded to other important state/local regulations such as licensing, registering property and contract enforcement. Education and transport logistics—also essential to competitiveness—are discussed in chapters 7 and 11 respectively.

74. **Chapter 4: Strengthening Social Protection in Mexico—Recent Progress and Future Challenges.** The currently fragmented system of social security and social assistance leads to large, persistent coverage gaps—e.g. in health and old age security—among both the poor and middle class, non-salaried workers. Fragmentation of the social protection system across institutions and programs has increased. As noted above, the financial sustainability of the system is questionable. Public employee pensions and health care are the most regressive major spending categories in Mexico.

75. There are two possible pathways forward. One option would be to strengthen the current fragmented system. This could involve establishing a targeted (e.g., means tested) social assistance pension for the elderly poor. On the health side, financial protection could be extended through the expansion of *Seguro Popular* (Popular Insurance) and/or other instruments, such as *IMSS’s Seguro de Salud para la Familia* (Health Insurance for the Family). *Seguro Popular* could be converted into more of a *seguro* (insurance), adjusting the current graduated premiums, and eventually introducing a choice of service providers. There also could be parametric reforms to public employee systems, along with a move to a fully funded system for public employees as mentioned in chapter 4.

76. A second option would be to create a unified system, de-linked from the labor market. The linkage to the labor market is through payroll taxes as the financing source, while the de-linked basic pension would be funded from general revenues. This would reduce labor market distortions created by payroll taxes and help reduce incentives for informal employment. Another way to reduce to incentives for informality would be to unbundle the current benefits package, either partially or completely. The current IMSS package includes eight elements, ranging from health insurance and pensions to sports and cultural facilities. Unbundling benefits would allow for individual workers to select only those services and protections they value.

77. Regardless of which option is taken, fiscal sustainability and micro-efficiency improvements (in particular in health care provision) would be critical. These issues can begin

to be addressed immediately even without a major structural reform of the social protection system.

78. **Chapter 5: Fostering Private Sector Led Innovation.** As discussed above, innovation is one of the key factors for increased productivity and economic growth. Total R&D investment is the lowest of the OECD at 0.45 percent of GDP, and it is also lower than Chile (0.6 percent) Brazil (0.95 percent) and China (1.2 percent). Sixty percent of R&D was for basic research rather than applied research. In the US, it is 15 percent. There is also a low degree of university-private sector cooperation, and there are two worlds within Mexico with a high concentration of R&D around DF and Monterrey.

79. Agriculture has been a particularly poor performer in terms of productivity growth. Agricultural exports increased after NAFTA, but the net agricultural trade deficit with US widened. Mexico faces new competitors in the United States, but Mexico has gained only limited penetration of new markets. Small producers benefited the least from NAFTA, and the Mexican agricultural innovation system was in crisis in the mid-1990s and poorly prepared for NAFTA. The crisis in the agricultural innovation system resulted from the dismantling of the national extension service and the ineffective performance of research institutions.

80. The chapter suggests some reforms for improving the innovation system. First of all, a change of vision would help, more specifically, by placing the entrepreneur at the center of the system. This can be accomplished by improving private-public collaborations along the lines of OECD examples, and enhance incentives for universities and research centers to collaborate. An institutional change that would help is to establish an independent “Observatory” to monitor and evaluate the national innovation system; and to evaluate public programs and policies. In the agricultural innovation system, it would be important to improve innovation capacity at all levels by building up the research and extension systems. A key area for agriculture would be to promote financial services for farmers and rural areas, more generally. Finally, one could rationalize the agriculture subsidies/incentives system in such a way so as to limit distortionary production subsidies and focus on promoting investments in new technology or changes in crop selection.

81. **Chapter 6: Environmental Management.** Environmental degradation is a limiting factor to economic growth, competitiveness and social welfare. The economic cost of environmental degradation is estimated at 9.2 percent of GDP. Nearly 90 percent of this cost is due to air pollution, so a key issue is energy use. Mexico is the ninth largest emitter of greenhouse gases in the world. Another area of concern is that Mexico is home to nearly 10 percent of the world’s species, but only 9 percent of land area is protected – a much lower level than other biodiversity rich countries in Latin America. Mexico is between two worlds in that it ranks 64 out of 117 countries in the category of environmental and social responsibility in the Global Competitiveness report. There are two worlds within Mexico: in rural areas, many households use fuel wood or other primitive combustion for cooking. This results in an estimated 3,800 premature deaths per year.

82. To avoid these impacts, the environmental agenda should go beyond sectoral issues and be mainstreamed in productive and social sectors. Mexico has been aware of this challenge and has initiated a comprehensive *Agenda de Transversalidad* which now needs to be strengthened

and expanded to address the three main environmental challenges of the country: controlling pollution and promoting climate sustainability, conserving scarce and increasingly demanded water resources, and promoting win-win solutions to pursue preservation efforts while simultaneously contributing to rural poverty reduction. This chapter discusses progress and next steps related to the *Agenda de Transversalidad*, pollution, climate change and solid waste management challenges, and natural resource conservation. Water sustainability is discussed in detail in Chapter 9.

83. A few specific highlights are as follows. First of all, given its particularly strong impact, air pollution regulation could be strengthened to reduce sulfur content in gasoline. Complementary measures would be to promote renewable energy use, promote renewable energy alternatives, promote the use of LPG and cleaner fuels, and improve mass transit systems (see chapter 10). Secondly, in rural areas, programs to improve indoor air ventilation would help reduce mortality associated with this environmental problem. Third, improve water quality controls in sensitive tourist zones and provide information for the development the high-end niche for eco-tourism. Finally, another priority area would be to assess how representative current National Protected Areas are for species diversity and further develop the “community protected areas” model.

84. **Chapter 7: Human capital and skills for a competitive labor market.** As noted above, in the areas of education and worker skills, Mexico is between two worlds, and there are two worlds within Mexico. This is characterized by low average attainment relative to the OECD, while there are first rate universities for those who make it to that stage. Those individuals who graduate from college earn an increasing skills premium over workers with lagging skills, and correspondingly lagging wages and benefits. With little hope of reaching the end of tertiary education, many youth abandon their studies at secondary school level, leading to a potential trap in terms of future earnings. This situation is complicated further on demand side by restrictive labor laws—including the high cost of hiring and firing workers.

85. During the last *sexenio*, there was substantial progress in enrollment at the primary and lower secondary levels. Now there is the need to move up to the upper secondary system. This implies additional decentralization complexities, in that there are still separate state and federal systems at the upper secondary level. One incentive for improving the situation would be to expand ongoing programs of *Oportunidades* that focus on upper secondary school students. In terms of quality of the supply of education, one could review *telesecundaria* and bilingual education programs to look for improved educational impact. One could also improve practical training for teachers, and expand coverage of the teacher assessment system. One could create a partnership for quality education through the following: expand teacher assessments, provide greater state flexibility on human resource management, and – as mentioned above—allocate transfers per student rather than per teacher and mainstream school autonomy.

86. In addition, workers’ skills could be enhanced by improving adult education program enrollment, especially targeted at young adults. In this regard, it would be important to take measures to increase the National Adult Education Institute’s (INEA) graduation rates. One could also improve the relevance of adult education by introducing the concept of “lifelong learning.”

87. Finally, labor reform would provide a critical complement to improvements in skill levels. One could increase labor demand by lowering non-wage costs, more specifically by providing more flexible employment contracts, creating a unified severance scheme, streamlining labor court procedures, and de-linking social security from labor taxation (see section on strengthening social protection, below). This greater flexibility would actually be good for workers by creating more and better job opportunities. The chapter also provides a review of wage subsidy programs and notes that empirical studies show that wage subsidy programs generally do not work: they provide only a temporary employment increase, at best.

88. **Chapter 8: Agriculture, Rural Development and Land Policies.** Poverty rates in rural areas in Mexico are substantially higher than in urban areas. As a result, programs to assist the poor in improving their income potential in both agricultural and non-agricultural activities should be high on the agenda for improving equity. Agricultural development would be an important way to increase incomes and reduce poverty in rural areas, but agriculture performance has been sluggish over the last 20 years, lagging behind other sectors. Competitive challenges in agriculture are large and will increase for some sensible sectors with the end of the NAFTA transition period.

89. The reform of land policies in the 1990s have not resulted in substantial changes in land use and productivity. Currently, government expenditures towards agriculture and rural development are high by international standards; however, results have been limited in terms of improving agricultural productivity and reducing rural poverty.

90. This chapter suggests that there is need to strengthen the agriculture innovation and rural finance systems and to reassess the system of agriculture subsidies. In addition it proposes the adoption of international models for greater decentralization of production-oriented rural development programs. Effective decentralization accompanied by more careful rural development planning at the state level could improve rural development outcomes.

91. **Chapter 9: Water Resources—Averting a Water Crisis in Mexico.** There are two worlds within Mexico in terms of water resources: water rich southern states and water scarce northern states. Mexico has critical and urgent water related problems including the overexploitation and contamination of surface water and groundwater resources in the regions where most of the people reside and where the great majority of the GDP is generated. The unsustainable use of water in these water scarce areas is a constraint to economic growth and competitiveness. It also disproportionately affects access and quality of services to the poor and degrades the environment. Irrigation is the largest user of water resources, accounting for 77 percent of withdrawals. Mexico has made important strides in water rights administration, water resources monitoring and assessment, water resources planning and basin level institution building that provide a good foundation for moving towards sustainable water resources management.

92. Mexico has also made steady progress in increasing water and sanitation service coverage over recent decades, reaching levels among the highest in Latin America. Access to water and sanitation services is at high levels, but the quality of service is poor. For example, there is a continuous supply for only 45 percent of users. Coverage levels drop sharply from more developed urban areas, through the urban periphery, and smaller towns to the more remote

rural areas. In a certain sense, there are two worlds: the top water companies perform at levels near the highest OECD standards; however, the worst perform at levels that are well below LAC standards.

93. There is a need to further decentralize and de-concentrate water resources management and planning as well as financial management to the river basin level with the participation of stakeholders in accordance with the 2004 modification to the National Water Law. The basin level is key, because it is where tradeoffs and priorities can be evaluated within the context of available water and financial resources.

94. In water and sanitation services, the main challenges are to reduce important gaps in access, notably in poor, rural, and indigenous communities, increase wastewater treatment coverage, and improve service quality and operating efficiency. This can be achieved by targeting water and sanitation investment budgets more effectively towards the needy areas.

95. Irrigation is the largest use of water resources: 77 percent of the total. In water scarce areas, water usage in irrigated agriculture needs to be reduced to sustain the environment and to ensure water availability to meet social needs and economic growth. This can be achieved by either shifting crops or crop technologies, and there is a regional dimension to this by motivating more water intensive crops in the south and less in north. This can be achieved through changing incentives in the water rights system and by revising water user fees and pollution discharge fees.

96. **Chapter 10: Oil and Gas Sectors.** Mexico is the sixth largest oil producer in the world; however, at current production rates, proven reserves represent only about 11 years of production. This situation would change only if there is an increase in investment leading to important new discoveries. Even with new discoveries, it is likely that production costs will increase, limiting the state oil and gas monopoly PEMEX's profitability.

97. In addition, PEMEX is heavily indebted. As noted in the chapter 2 summary above, high royalties, taxes and profit-sharing flows to the public sector have left PEMEX with limited net income to invest. Revenues associated with the oil sector reached 38 percent of federal government revenues in 2005. As a result, increasing debt was used to finance investment. There are also managerial issues—extremely high wages and benefits by Mexican standards—that have limited profitability and the financial capacity to invest. The new fiscal regime provides some additional resources for PEMEX investment, but royalties remain very high.

98. PEMEX's monopoly status is enshrined in the Constitution. However, some form of association with other companies would be necessary for oil exploration to avoid future energy security problems and introduce efficiency incentives into the sector. PEMEX lacks financial and technical resources for more aggressive exploration.

99. The natural gas sector is characterized by high production levels, combined with increasing reliance on imports, which have already reached 15 to 20 percent of consumption. Natural gas prices in Mexico have been rising rapidly, and are now amongst the highest in the world. While the Government has made an attempt to attract private investors to non-associated gas production, the outcome has been disappointing.

100. The declining investment trend in the oil and gas sectors has been reversed during the last administration. Despite the reversal in this trend, reserves recovery is not yet occurring. Private sector investment of some form is still needed; however, there is still no legal framework for making this happen. Policy decisions necessarily involve a trade-off between short term fiscal revenue requirements and the need for a sustainable hydrocarbon sector able to maximize its contribution to economic and social welfare in the long term. To this end, reforms to the institutional and fiscal structures that link PEMEX and Hacienda as well as measures to promote private sector participation in the industry are necessary. The Government could seek ways to attract private participation in order to help meet the financing challenges of the sector, introduce stronger efficiency incentives and mobilize state-of-the-art technology.

101. Some interim measures could be taken to improve incentives for PEMEX's performance. One could create performance indicators for PEMEX in order to improve internal efficiency of the company. Transparency measures could also provide incentives for improved performance: e.g., publication and diffusion of the company's operations in greater detail. In addition, improved and independent regulatory oversight of downstream products could imply lower costs for those final products.

102. **Chapter 11: Infrastructure for Human Welfare and Economic Growth.** Mexico's infrastructure and housing sectors have showed improvements in a number of areas over the last six years, and there are segments where Mexico outperforms regional comparators. The number of new annual new housing units constructed has increased by over 40 percent, and road density, paved roads per worker and access to electricity services all are high by regional standards.

103. Current investment levels are sufficient to maintain an infrastructure stock that remains at high standards for Latin America, but it is not sufficient to catch up to Asian standards. A higher level of investment could close the gap between the two worlds, both in terms of those international comparators and in terms of the gaps within Mexico. One way to finance increased investment would be to reduce untargeted, regressive subsidies and reallocate those resources to real investment.

104. In 2000, 25 million households lived in crowded or substandard housing. While the increased production of housing has been significant, this increase addresses the flow of new demand but not the backlog of housing needs. In addition, much of the increase in the housing flow has not resolved the housing needs of the poor. In terms of housing, investment levels are sufficient to be on average in Latin America (where overall track record is not good), but far behind the regional leader in housing (Chile). Financing the upfront cost, rather than interest subsidies, may be the best approach to solving the housing needs of the poor.

105. There remain challenges in terms of improving the quality of infrastructure and in closing gaps in access, especially in rural and indigenous communities. A reform program that focuses on seven areas is discussed in this note: (i) refocus public spending on areas that the private sector cannot finance; (ii) use incremental resources released to focus on maintenance and rehabilitation, strategic infrastructure bottlenecks and extension of basic services and housing to the poor; (iii) improve the design of investment programs through the budget process; (iv) improve the institutional framework to mobilize more private sector finance; (v) revise the design of public sector credit enhancements for public-private partnerships; (vi) strengthen arms-

length regulation of tariffs and service quality; and (vii) improve accountability and information on performance outcomes.

106. **Concluding remarks.** We see then across chapters that a variety of measures could be taken to accelerate equitable growth. With this acceleration of equitable growth, Mexico can close the gap between the two worlds. Mexico can advance towards the highest OECD standards in economic and social indicators, and Mexico can bring together the two worlds within Mexico through broad participation in this progress.

Chapter 1: POLITICAL TRANSITION AND THE INSTITUTIONAL PROCESS OF POLICY-MAKING

Edited by Roby Senderowitsch and David Rosenblatt¹⁴

Mexico has undergone a substantial political, institutional and economic transformation over the last two decades. A major feature of the political transition has been the end of centralized decision making and the rise of checks and balances in a context of increasingly open and competitive elections. This chapter examines how decision making, including the enactment of reforms, has evolved during this period. It provides results on the productivity of the legislative process in Mexico, and cross-country evidence on how political institutions impact policy outcomes. The chapter concludes with suggestions on institutional reforms (for example, independence, autonomy and transparency of regulatory agencies) that can reinforce the progress in democratic governance. With these reforms, the political system may overcome special interests that resist reforms for improving public sector effectiveness and economic efficiency.

1. Mexico has undergone a substantial political, institutional and economic transformation over the last two decades. The political system has evolved towards open and highly competitive elections, decentralization of the public sector has progressed, some sectors previously controlled by state owned enterprises were privatized and barriers to international trade were substantially reduced. Sector reforms have resulted in expanded coverage of basic social services such as education and health, and the macroeconomic and trade reforms of the 1990s have turned Mexico into a stable and more open economy.

2. Despite this progress, the pending agenda for improving governance and public sector performance is long. In some ways, Mexico is caught between two worlds, and there are two worlds within Mexico. Some governmental functions have become modernized and efficient, approaching the highest OECD standards, while other functions lag behind. In some regions of the country, state and local governments do not have even the most basic capacity to plan, prepare and monitor their government expenditure accounts, while other states are implementing sophisticated reforms to streamline the business registry process, using modern technology. The quality, equity, and effectiveness of basic public services such as public health, education, and public security still lag behind other OECD countries, as discussed in other chapters of this report. Mexico needs public sector reforms if it is to attain the standards of the typical OECD country, and with persistent reform efforts, Mexico can reach those standards.

3. Mexico's efforts to improve public sector performance are occurring in the middle of a political transition in which institutions, politicians and the citizenry are still adapting to an open and competitive polity. The policy decisions discussed in other chapters of this

¹⁴ This chapter is based on the World Bank's recently released report *Democratic Governance in Mexico* that was prepared by a team led by Yasuhiko Matsuda and Roby Senderowitsch.

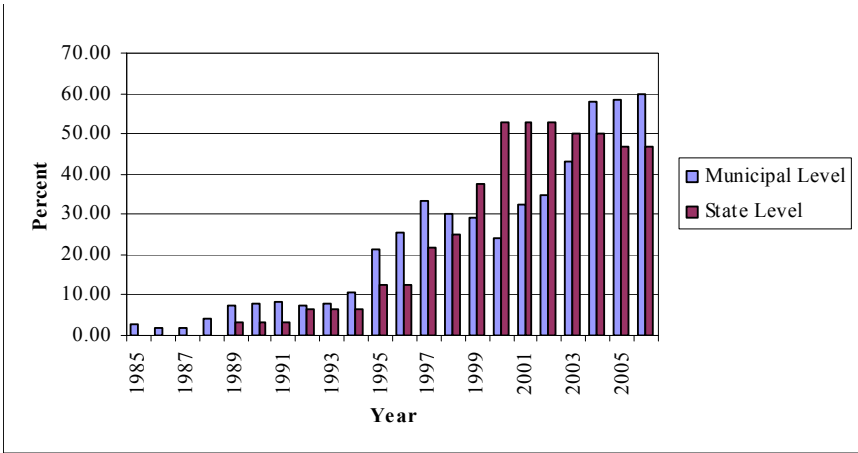
report take place in this dynamic environment. In addition, while interest group influence is common in all countries, the particular characteristics of the period of Revolutionary Institutional Party (PRI) hegemony led to political alliances and structures that have endured into the current competitive democratic period. A recent World Bank Institutional and Governance Review examined how this transition is evolving, and this chapter summarizes the analysis as key context for the other chapters of the Policy Notes.

4. **The transition obviously has been a highly complex process, so here we will focus on a few dimensions.** First, we will describe how the political transition has been characterized by a de-concentration of political power from the PRI across institutions and to a greater number of actors. Secondly, we will look at how this de-concentration of power has affected the efficiency of the policy-making process in terms of securing passage of legislation and constitutional reforms. Third, we will look at some (albeit limited) evidence on how the content of policies have responded to democratic political competition: have policies become more “publicly regarded”? Fourth, we will look at the international evidence on the design of political institutions affects policy outcomes. Finally, we will conclude with suggestions on possible institutional reforms to make policy-making both efficient and responsive to democratic accountability.

I. Political Transition in Mexico

5. **The political transition started at least in the 1980s, if not earlier, when major sub-national jurisdictions (e.g., Ciudad Juárez, State of Baja California) began to see heightened electoral competitions (see Table 1).** For more than 70 years, Mexico operated under a particular (and very unique) set of rules of the political game that were fairly clear and predictable, described by a prominent Mexican political scientist as “loyalty and discipline in exchange for benefits” (Rubio, 2004). The central piece of this political system, the single-party dominance by the (PRI), no longer exists.

Figure 1: Percent of Municipalities and States Governed by Parties Other than the PRI, 1985-2006



Source: Grindle, 2005 and Bank staff calculations

6. **The gradual transition process that culminated in the victory of an opposition presidential candidate in 2000,** for the first time since the establishment of the Revolutionary

National Party (PNR, PRI's precursor) in 1929, has steadily undone some of the building blocks of the centralist presidential regime. Most notably, Mexican voters now have real alternatives to the PRI, and can exercise these choices meaningfully both at the federal level and at the sub-national levels, although the degree of electoral competitiveness varies from one locality to another.

7. **First and foremost, the ongoing political transition is driven by the increasing competitiveness of the electoral process.** All else equal, competitive elections should make politicians more responsive to the demands and the interests of the majority of voters, which is the essence of representative democracy.

8. **Second, Mexico was long characterized by the extreme centralization of political powers in the hands of the national executive.** But since the mid 1990s, institutional checks and balances on the executive's political discretion have become a reality. The 1994 constitutional reform provided the Supreme Court with greater political independence, and since 1997, the president's party has not held majority control of the Congress. Checks and balances exercised by countervailing powers of multiple institutional actors could improve democratic governance by limiting abuse of power by any one of them, especially the president.

9. **In addition, during the last decade, Mexico also experienced a decentralization process** and began devolving responsibility to states for key services like education and health. Although decentralization in Mexico is far from being complete,¹⁵ it has already led to fragmentation of the power of the central government in the definition and delivery of public policies. As a recent World Bank report on the topic *Decentralized Service Delivery for the Poor* states, "(t)he expenditure powers of the Federal Government have been reduced to the benefit of sub-national governments. Additionally, many more authorities now participate actively in budgeting, spending and auditing of federal resources" (World Bank, 2006: 148). As states and municipalities have acquired much greater policy responsibilities since the early 1990s, some have argued that decentralization of the political, administrative and fiscal structures is changing not only the distribution of power and resources across territorial entities, but also politicians' incentives and their strategies for career survival/advancement (De Remes, 2005). Decentralization combined with more vibrant political competition may be complicating the task of inter-governmental coordination, on the one hand, but creating new opportunities for governance improvement in specific sub-national jurisdictions, on the other. For example, evidence of the impact of competitive elections at the subnational level shows that elected governments become more responsive to citizens' demands (Boyce, 2006; Hiskey, 2003; and Moreno, 2005)

10. **The increase in the number of institutional players with the ability to restrain the executive may result in slowing down of the policymaking process, or so-called gridlock.** In fact, the perception of gridlock is a repeated theme in political commentary in Mexico. This chapter revisits the issue of gridlock and concludes that fears of gridlock – defined narrowly and specifically as the government's inability to pass constitutional or legal reforms because of

¹⁵ As reflected in *Decentralized Service Delivery for the Poor* (World Bank, 2006), decentralization in Mexico faces a number of challenges including the lack of clear and stable definitions regarding the responsibilities of each level of government in the provision of services and the emphasis on the expenditure side of the federal budget.

partisan differences in the legislature – probably have been overstated. Our evidence leads us to conclude that gridlock, to the extent it exists, is confined to constitutional and not normal legislative changes, as discussed in the next section.

II. Mexico's Policy-making Efficiency During the Political Transition

11. **For most of the 70-year period under the PRI dominance, the presidency enjoyed uncontested authority over the Congress that was also dominated by the PRI.** The executive completely dominated the legislature thanks to the extraordinary discipline of the PRI, of which the President was the head – this was reflected in the astounding 99.8% success rate in getting the executive's legislative proposals approved by Congress even in its latter days of the 1994-97 Congressional period (Nacif, 2002).¹⁶

12. **The strength of the Mexican presidents during the PRI period in fact resulted not so much from their formal constitutional powers but from so-called meta-constitutional powers.** These powers were based on the simultaneous role of the president as the head of the hegemonic party with a vast array of informal powers at its disposal (Weldon, 1997). As head of the PRI, the presidents could count on impressive party discipline that guaranteed block voting by the PRI legislators, who controlled the qualified majority of 2/3 or more in the Lower House (necessary to secure a vote for a constitutional reform) until 1988.¹⁷

13. **With the gradual decline in the PRI's hold over Congress,¹⁸ the president's ability to influence legislative outcomes also diminished.** With the defeat of the PRI in 2000, this arrangement that gave the presidents "meta constitutional" powers to influence legislative and other political decisions also disappeared.

*"Political power has migrated away from the presidency to, first and foremost, the Congress. The Congress has become the center for political negotiations, as well as a major source of gridlock. Since the members of Congress cannot run for consecutive terms, they have little or no incentive to negotiate with the president or listen to their constituents."*¹⁹

14. **It is hardly contestable that PRI presidents' "meta constitutional" powers facilitated adoption of some reforms such as those implemented during the Salinas sexenio.** Despite these powers, Mexico was in fact not an aggressive reformer prior to the 2000 elections apart from the flurry of reforms during the Salinas sexenio (1988-94). One signal of this is Mexico's rank on Eduardo Lora's Structural Reform Index, which measures progress in trade and financial services liberalization, tax reform, privatization, and labor reform between 1985 and 1999 (Lora, 2001). Figure 2 shows that for most of the period, Mexico was at or below the Latin American regional average. Only during the Salinas administration did Mexico more aggressively reform

¹⁶ In the same period, PAN and PRD introduced even more bills (124 altogether) than the Executive and the PRI combined (103), yet managed to get only 11 of them approved, less than 10% "success rate."

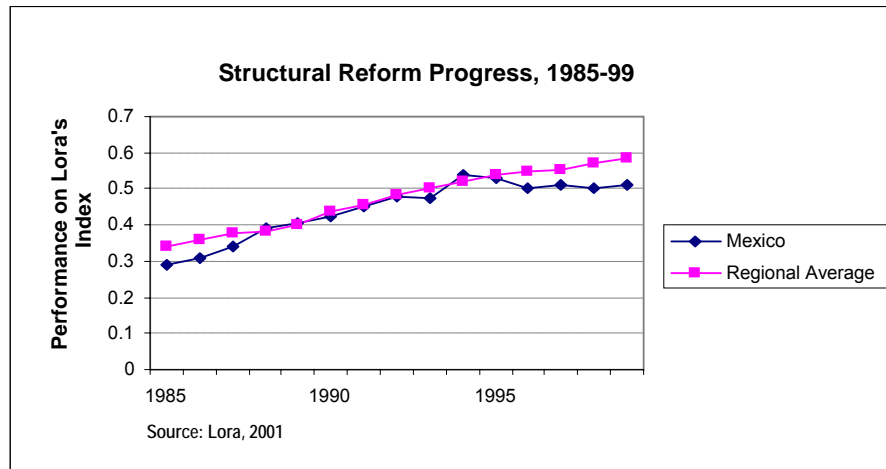
¹⁷ A historical analysis reveals that when the presidents did not control a legislative majority, which was frequent in the 1910s and 1920s, they enjoyed little legislative success (Weldon, 2002).

¹⁸ In 1988, the PRI's share in Congress dropped below the two thirds of the seats that were necessary to pass constitutional amendments, and in 1997, the PRI lost a majority of the Congressional seats.

¹⁹ Rubio (2004, p. 24).

its economy. Even here, as Chapter 3 demonstrates, reforms did not always result in a more competitive economic structure or in an equitable distribution of economic benefits.

Figure 2: Structural Reform Progress, 1985-99



15. **How does the earlier period compare with legislative productivity since 2000?** It turns out that the comparison hinges on whether one considers constitutional reforms or normal legislation. The number of constitutional reforms introduced and approved has markedly decelerated since the advent of divided government in 1997. As of May 2006, the number of constitutional reforms passed during the last three sexenios declined from 52 and 76 in the Salinas and Zedillo administrations, respectively, to 27 in the Fox administration (see Table 1).²⁰ Furthermore, the average length of days it took the reforms to be approved in the House of Deputies has been much longer in the Fox administration (more than 550 days) compared to the two previous administrations (between 83 and 186 days).²¹

²⁰ This is consistent with Eduardo Lora and Ugo Panizza's structural reform index. When compared with 10 other countries in the region, Mexico ranks the second from the bottom, just above Uruguay in the overall progress with economic reforms (Lora and Panizza, 2002).

²¹ See the table in the ANNEX for a breakdown of the types of reforms approved in each period.

Table 1 Constitutional Reforms by Legislative Period, 1988 – 2006

Legislative Period	President	No. of Arts. Reformed/1	Avg. duration/2	Avg vote/3	% avg/4
1988-91 (54)	Salinas I	10	178	315.6	63%
1991-94 (55)	Salinas II	42	83	325.9	66%
1994-97 (56)	Zedillo I	54	124	396.6	79%
1997-00 (57)	Zedillo II	22	186	380.6	76%
2000-03 (58)	Fox I	10	565	399.8	80%
2003-06 (59)	Fox II	17	552	393.0	79%
		143	281	368.2	74%

1. Does not include transitory articles.

2. Average calendar days between the date of initial submission and publication in Diario Oficial de la Federación.

2. Requires two-thirds of the Lower House (500x2/3=334).

3. Percentage does not take into account quorum in each session.

Source: *Gaceta Parlamentaria*, and <http://www.diputados.gob.mx/levinfo/refcns/index.htm>

16. **Looking to the period before 1997, constitutional reforms were quite frequent in Mexico.** Between the promulgation of the Constitution in 1917 and September 2004, there were 416 constitutional reforms (4.7 per year, 29.7 per *sexenio*, compared to 52 constitutional reforms between 1988 and 2006, or 2.9 per year in Brazil),²² but a sizable share of these (187) took place during the three *sexenios* of de la Madrid, Salinas, and Zedillo (1982-2000).

17. Table 1 summarizes the content of the constitutional reforms passed during the last three presidential administrations. Most of the economic reforms touted as the main achievements of the Salinas administration (e.g., NAFTA, privatizations), except the re-privatization of the banks that had been nationalized in the early 1980s, occurred during the second half of the *sexenio*. **The data show that more reforms happened in the second half of the *sexenio* when the PRI regained the majority of the Congress** (64% of the seats, still short of the two-third super majority needed to pass constitutional reforms unilaterally). This observed pattern is consistent with the gridlock hypothesis that the ease of reforms depends on the extent to which the party in power controls the Congress.

18. **However, the pattern becomes less obvious in the Zedillo administration.** By the same logic, we would expect far more reforms in the first half of the Zedillo presidency, when the PRI still maintained a simple majority in Congress (60% of the seats) than in the second half, when the opposition outnumbered the PRI for the first time. This is the case if we use as the unit of analysis the number of constitutional articles modified. But if we count the number of issues addressed, the second half of the Zedillo administration “out-performs” the first half, in spite of not controlling the simple majority, let alone the two-thirds super-majority.

19. **During the Fox Administration, a number of Constitutional Reforms were approved, many of them of particular importance and approved with relatively little resistance.** For example, the Indigenous Peoples’ Rights reform, which included modifications

²² It is not surprising that Brazil has had many constitutional reforms because its broad coverage and details increase the scope and the need for constitutional reforms for major policy changes.

on a number of articles (e.g. Individual and Citizen Rights) and came as a response to the Chiapas conflict. Other reform initiatives were rejected (i.e. energy, labor and fiscal). This is consistent with Aparicio (2005), who states that reforms with high levels of opposition among public bureaucrats, which have redistributive effects, and are unpopular among voters are less likely to be approved –which also reflects the experience of previous administrations.

20. The picture gets more subtle and complex once we turn our attention to legislative processes more broadly. **First, normal legislative productivity, other than the rate of constitutional reforms, did not decline during the Fox administration.** On the contrary, the number of initiatives discussed in Congress went from 250 for the 1991-97 period and 600 for the 1997-2000 period, to more than 1,200 for the 2000-03 period. Unlike in the heyday of the PRI hegemony, much of this legislative “productivity” is due to the increased activism of the political parties as initiators of legislative proposals (Table 2). Thus, in 1991-97, with PRI still in control of the majority in both houses of Congress, the Executive introduced 208 initiatives to various congressional commissions and had 205 of them approved (an astounding 98.5% “success” rate). In contrast, the political parties (including PRI) introduced 286 initiatives and had only 52 of them approved (less than 20% “success” rate). Between 1997 and 2003, under divided government, the number of Executive proposals dropped to 93, though they still showed a respectable “success” rate of about 84% (i.e., 78 initiatives approved). In contrast, the number of initiatives by the political parties skyrocketed to 1,720 in this period, which resulted in 334 of them approved.

21. **Thus the “success” rate remained low, but in terms of the final outcome of the number of initiatives approved, the “hyper-activity” more than compensated for the low “success” rate** (Aparicio, 2006). This pattern implies that during before the advent of divided government, the PRI exercised tight control of legislative agenda, proposed only those bills that had a near guarantee of eventual passage, and negotiated the content of these bills largely prior to their submission to the formal legislative process (i.e., negotiations “behind closed doors”).

Table 2: “Productivity” of the Federal Lower House, 1991 – 2006

Initiator	Bills introduced					Laws approved				
	1991-94	1994-97	1997-00	2000-03	2003-06	1991-94	1994-97	1997-00	2000-03	2003-06
Executive	124	84	32	61	32	122	83	28	50	16
PRI	30	19	86	306	749	11	7	15	54	114
PAN	26	79	168	265	368	4	8	31	65	56
PRD	32	45	157	294	320	2	3	20	45	37
Others*	31	24	163	281	504	10	7	43	61	56
Total	243	251	606	1207	1973	149	108	137	275	279

*Includes initiatives from other parties, independents, joint, and state legislatures

Source: *Sistema Integral de Información y Difusión de la Cámara de Diputados*, Aparicio (2006).

22. **Table 3 shows the frequency of federal law reforms during the last three presidential administrations.** Of the 244 federal laws currently in force, 88 have never been modified since their promulgation. Of the remaining 156 laws, 96 were added as new during this period. The other 60 laws were reformed multiple times (792 times altogether, or 13.2 modifications per law). The figures show that the Fox administration successfully introduced

reforms to federal laws and enacted new ones at a pace even higher than the Zedillo administration. Not only the Fox administration but also the Zedillo administration, whose government was divided in the second half of its term, managed to pass more new federal laws and obtain legislative approvals for federal law reforms than the Salinas administration. **Of course, these tallies do not give us any information regarding relative importance of these bills and the political difficulties in passing them.** Nor do they negate the fact that the major structural reforms that the government itself targeted as priorities failed to pass.

	1988-2005	Salinas	Zedillo	Fox
Reforms to Federal Laws	792	180	263	349
New Laws	96	17	38	41
Source: Aparicio (2006), based on " <i>Sumario de Reformas a las Leyes Federales Vigentes</i> ", <i>Cámara de Diputados</i> , June 1, 2006.				

23. The upper portion of Table 4 reports the number of reforms to some of the major federal laws during the previous three administrations. **Of the federal laws, those that have gone through the most frequent modifications included those governing fiscal and taxation matters and criminal justice** (Aparicio, 2005). In these areas, the “performance” of the three administrations is more or less comparable, although the reforms to the General Health Law are included as an illustration of a case in which the Fox administration appeared to have been more aggressive than its predecessors.

24. **In contrast, the federal laws governing the four contentious areas of structural reforms – energy, petroleum, pensions, and labor (see the bottom portion of Table 4) – together have gone through far fewer changes in the same period.** In this case, however, the Zedillo administration enacted more legislative modifications than either the Fox administration, or the Salinas administration, the best known of the three for pursuing aggressive economic reforms. Again, these tallies should be interpreted with caution. They offer no insight into the quality and the relative significance of the legal changes. Nonetheless, they do generally support the contention that these reforms have always been difficult even during the height of the reformist presidencies.

25. **In sum, while the Fox administration failed to pass the main structural reforms targeted in energy, labor and public sector pensions, it appears that the sources of these reform failures might not simply be due to divided government; i.e., lack of a legislative majority in Congress.** It is difficult to judge the importance of particular legislative action; however, the simple accounting exercise conducted here reveals mixed evidence on the extent to which divided government led to legislative gridlock. Under the new competitive system, the legislature now takes a more active role than the executive in initiating legislation, and there has been some decline in the number of Constitutional reform initiatives. On the other hand, general legislative “productivity” has not declined. A final comment is that the particular nature of the

structural reforms in energy, labor and public sector pensions²³ impact well-organized interest groups that make it difficult for any administration to advance.

Table 4 Reforms to Selected Federal Laws, 1988 – 2005

Laws with frequent reforms				
Sector	Law	Salinas	Zedillo	Fox
Criminal Justice	CÓDIGO PENAL FEDERAL	13	13	13
	CÓDIGO FEDERAL DE PROCEDIMIENTOS PENALES	8	9	9
Taxation*	LEY DEL IMPUESTO AL VALOR AGREGADO	7	8	12
	LEY DEL IMPUESTO ESPECIAL SOBRE PRODUCCIÓN Y SERVICIOS	6	8	7
	LEY DEL IMPUESTO SOBRE LA RENTA	-	-	11
Health	LEY GENERAL DE SALUD	1	3	22
Total		35	41	74
Laws with limited reforms				
Energy	LEY DEL SERVICIO PÚBLICO DE ENERGÍA ELÉCTRICA	3	-	-
Petroleum	LEY REGLAMENTARIA DEL ART. 27 CONSTIT. EN EL RAMO DEL PETRÓLEO	-	2	2
Pensions	LEY DE LOS SISTEMAS DE AHORRO PARA EL RETIRO	-	4	4
Labor	LEY FEDERAL DE LOS TRABAJADORES AL SERVICIO DEL ESTADO, REGLAMENTARIA DEL APDO. B DEL ART. 123	-	1	1
	LEY FEDERAL DEL TRABAJO	-	1	1
Total		3	8	8

Source: Aparicio (2005) based on "Sumario de Reformas a las Leyes Federales Vigentes", Cámara de Diputados, Sep. 19, 2006.

* Selected tax laws for illustration only.

²³ This chapter was written in November 2006. A reform of public employee pensions was approved in March 2007.

III. Has policy-making responded to competitive democratic accountability?

26. A recent report on the politics of policymaking in Latin America by the Inter-American Development Bank (2006) applies a composite measure of policy quality across selected Latin American countries.²⁴ The measures for Mexico compare the period prior to 1997—the year when the PRI lost the majority control of Congress—and since then.²⁵ **According to these measures, policy quality in Mexico has improved on two dimensions in a way that is expected from a more democratic political system, namely “public-regardedness” and “efficiency.”** Both measures relate to the extent to which policies benefit the general welfare of the society as a whole as opposed to cater to the interests of the privileged few. Based on available survey data (e.g., the Global Competitiveness Report of the World Economic Forum) as well as the specially designed State Capabilities survey conducted for their study, the IDB measure of “public-regardedness” captures:

1. The extent to which public officials tend to favor the well connected in their policy decisions.
2. The extent to which social transfers effectively reach the poor as opposed to the rich.
3. The ability of the State to impose losses on powerful actors.
4. The extent to which the government represents diffuse, unorganized interests, in addition to concentrated organized interests.

The “efficiency” measure, in turn, measures efficiency in allocation of public resources, and is based on:

1. Whether the composition of public spending is wasteful.
2. Whether the resources are targeted where most effective.

27. As shown in Table 5, in the first period, Mexico’s score in “public-regardedness” (1.57 in a 1-4 scale) was among the lowest in the region, and far below the regional average of 2.37. This has improved somewhat (to 2.21) in the second period; however, it still remains “below average.” The “efficiency” score fared slightly better – the apparently low score of 1.89 actually placed Mexico in the mid range of the individual country scores that ranged from the low of 1.21 to the high of 2.92. Here, too, there is a sign of slight improvement in the second period, which more or less coincides with the current period of greater political opening.

²⁴ These measures were developed specifically for this IDB report, on the basis of the State Capabilities Survey, a survey of more than 150 experts in 18 Latin American countries. The IDB (2006) notes that “respondents to the State Capabilities Survey were explicitly asked to base their answers not on the performance of public policies under the current administration, but rather on performance in the last couple of decades, or since the country’s return to democratic rule” (p. 131).

²⁵ The survey was carried out in 2005.

Table 5: Measures of Policy Quality

	Adaptability Index	Stability Index	Enforcement and Implementation Index	Coordination and Coherence Index	Public Regardedness Index	Efficiency Index	Overall Policy Index
MEX1	2.71	3.07	2.33	2.83	1.57	1.89	2.40
MEX2	2.47	2.79	2.16	2.19	2.21	2.20	2.34
LAC Avg.	2.37	2.37	2.37	2.37	2.37	2.37	2.37

Source: Inter-American Development Bank (2006).

28. The decline in the scores on dimensions such as “adaptability” and “coordination and coherence” suggests a tendency that is consistent with the common perception of gridlock in the political system (see below for more discussion on this question). But, **the relative improvements in “public-regardedness” and “efficiency” are encouraging precisely because these are the kinds of changes one would expect as positive effects of the political opening that gives meaningful voice to the majority of voters.** Thus, to the extent these composite measures accurately capture the general tendency of policy quality in Mexico, there are reasons for optimism, but to the extent that the scores are still relatively low (below the regional average), they are not a reason for complacency.²⁶

IV. Political Institutions and Policy Outcomes: International Experience

29. Within Mexico, much of the ongoing debate on the efficacy of the State focuses on the design of the state’s constitutional structure, apparently driven by the concern that the inability of the government to make progress with pending reforms is due, at least partly, to the sub-optimal design of the key political institutions. **As part of this debate, different actors from the academia, the private sector, civil society, and the political class have proposed a number of reforms to Mexico’s political institutions.**

30. **In this section of the chapter, we review these different options considered today in Mexico.** These can be separated between those reforms intended to make government decision-making more efficient (e.g., by encouraging inter-branch cooperation between the executive and the congress) and those intended to improve politicians’ responsiveness to their electorate (e.g., by changing the electoral rule).

Proposals Intended to Make Government Decision-making More Efficient

A. Strengthening the President’s Constitutional Powers

31. **According to the 1917 constitution, the Mexican presidency has limited formal powers.** For example, when discussing the executive-legislative relationships in Mexico, Casar (1999) argues that the legislative powers of the president are not extraordinary when compared to other countries, but that this was compensated by what he termed “meta constitutional” powers

²⁶ The subjective nature of the measures, like many governance indexes that are increasingly common, present inherent limitations, and thus should be interpreted with caution.

of the president that relied on his status as the head of the PRI.²⁷ The transition to democratic governance shifted this paradigm. The old meta-constitutional powers of the President no longer exist. Some therefore argue that formal powers of the president should be augmented to fill the power “vacuum” created by the transition to democratic governance.

32. For example, Mexican presidents have the authority to present legislative initiatives to Congress. However, many times, if political agreements do not exist, congressmen may ignore presidential initiatives—without even discussing them in their sessions. In other presidential democracies (though not in the United States), presidents often have the power to force legislative agenda by, for example, submitting an executive decree whose deliberation takes precedence over other pending bills in Congress. In order to give the president greater agenda-setting power, **Negretto (2006) proposes a “fast-track” instrument (*iniciativas urgentes*), which obliges congressmen to take a public position regarding an initiative within a pre-defined timeframe.** This would help break the status-quo about potential reforms that need to be discussed, although it would not guarantee the success of the initiatives.²⁸

33. **A stronger proposal (requiring an up or down vote on presidential initiatives) would, on the other hand, represent a higher degree of presidential authority than is found in nearly any other presidential democracy.** There are no data available to evaluate the effect of either reform on legislative productivity or on the elimination of inequitable or growth-suppressing policy distortions. It is also not clear how such reforms would affect political incentives to pursue policy reforms.

B. Moving towards a Parliamentary System

34. **The most radical proposal that is currently entertained is to adopt a parliamentary system of government.** This reform can have substantial effects on both legislative efficacy and incentives to undertake reforms in the public interest. A parliamentary system could reduce political fragmentation and the risks of divided government when the government enjoys an outright majority (as in UK-style majoritarian systems). Some suggest that coalition governments in a parliamentary system can make policies more effectively than can presidents and legislatures working together. Most importantly, in a parliamentary system, the loss of confidence in the government can trigger general elections or reconstitution of the government to renew its mandate. This gives a coalition government in a parliamentary system a stronger motivation for legislative efficacy than exists in a divided government in a presidential system.

C. Changing Electoral Rules for Presidential Elections

35. **When an elected politician’s margin of victory is slight, the legitimacy of the victory is more likely to be called into question.** When the politician is a president, this threatens his or her ability to govern the country. This reform restores legitimacy in those cases where a large

²⁷ The president in Mexico does not have the authority to call for extraordinary sessions of Congress and has no authority to call for a popular referendum – as in other presidential democracies.

²⁸ A flip side of the proposal to strengthen the president’s legislative powers is to formalize additional mechanisms of checks and balances so as to promote greater dialogue and collaboration between the executive and the legislative branches. For example, Negretto (2006) proposes an adoption of a procedure for cabinet appointments similar to the US model, which mandates the Senate to endorse cabinet nominations by the president.

fraction of the population believes that the winner in the first round secured victory only because his or her opponents divided their support between multiple losing candidates. However, in the case where a country is truly polarized into two roughly equal blocs (say, right wing and left wing), the introduction of a second round will be unlikely to have a material effect on legitimacy.

36. **However, the absolute majority system that requires a second round unless the winning candidate in the first round has more than 50% of the votes (or at least a sufficiently large margin of victory over the second-place candidate) presents a number of limitations.** One of these is the proliferation of small parties. In a single-round election, some supporters of a small party may cast their votes not for their own preferred party, which has virtually no chance of winning the presidency, but instead for their second-best choice in order to prevent their least favorite party from winning. The introduction of a second round election, however, means that the supporters of the third party lose nothing by voting for their most preferred party in the first round. The introduction of a second round also encourages the entry of parties whose strategic interests are not in actually winning the presidency but in later negotiating their support in exchange for some reciprocal benefits (e.g., attractive cabinet posts) (Shugart and Taagepera, 1994). If these small parties are undisciplined (e.g., seeking a share of rent rather than pursuit of a specific policy agenda, as often seen in other countries that have introduced a second-round in presidential elections), the introduction of a second round may actually compromise, rather than improve, the president's ability to govern.

37. **A related proposal is to eliminate Mexico's electoral calendar where national elections and sub-national elections are held at different times, and synchronize these calendars.** Non-concurrent elections increase the likelihood that voters cast their votes in national and sub-national elections with different criteria (simply because the non-concurrence reduces the likelihood that common issues will influence their voting decisions between the two levels, as they might if the elections were concurrent). Recognizing the challenge of aligning national policies with sub-national political realities, some advocate adjusting the timing of national and sub-national electoral cycles. This would increase the likelihood that outcomes of sub-national elections will be influenced, at least to some extent, by the national-level campaign, and thus favor the president's political allies. To the extent the ongoing political opening further empowers Mexico's sub-national political actors, a higher degree of political alignment between the national executive and the sub-national governments could facilitate coalition building for key policy reforms that involve sub-national actors (e.g., fiscal reform).

Measures Intended to Make Elected Officials More Representative or Responsive

A. Revisiting the Representation System for Congress

38. Mexico's legislators are elected in a mixed electoral system where 300 out of the 500 representatives in the lower chamber are elected in a plurality "winner-take-all" system in their own districts and the remaining 200 are elected on the basis of proportional representation from a national list. In the Senate, 96 senators are elected directly in their own states (2 representing the winning party and one for the second most voted party) and an additional 32 are proportionally elected on a national list. For this system to work, **Mexico combines two different sets of rules and formulas to translate popular votes into congressional seats** (see Negretto, 2006).

39. **There are potential shortcomings to either the plurality-district system or the proportional system.** First, the district system weakens the overall proportionality of seats vis-à-vis the shares of votes the parties receive in elections since a number of votes are "wasted" in each district. PRI, as the dominant party, long enjoyed this effect because the loss in its vote share in specific districts did not immediately translate into corresponding losses in its share of congressional seats. Second, the proportional representation system based on a national list of candidates that party leadership chooses is often criticized for weakening elected legislators' incentives to be responsive to their constituency because the voters essentially vote for parties (rather than individual candidates). In addition, it is the party leadership that decides who gets to be in the party list.

40. **Two different alternatives are discussed among Mexicans to correct these situations.** First, some argue that switching to a full plurality system – a la Americana – may help attenuate the problem of politician responsiveness to voters. However, many have also realized that this reform may undermine the ability of political parties to keep their members aligned in Congress, which in turn may affect the chances for credible commitments and coalition building between parties. Second, Negretto (2006) and others proposed the possibility of having citizens vote in separate ballots for (a) proportional representation and (b) district representatives.

B. Shortening Terms and Relaxing Term Limits

41. Critics of presidential systems state that when presidents lose popular support, citizens need to wait until his or her period finishes, putting the whole country "on hold." They also argue that the longer the presidential term, the higher the chances of having a "lame-duck" president and pressure for extra-constitutional means of removing an ineffective incumbent (e.g., popular unrest, early resignation), as witnessed in a number of Latin American countries during the last decade. **Following this rationale, Negretto (2006) advocates shortening the presidential term in Mexico, from 6 to 4 years.**

42. **Some combine the proposal to shorten the presidential term with the popular notion of relaxing term limits.** Proponents of re-election state that by allowing political actors to seek reelection, their accountability and responsiveness towards their constituency would be improved. While most of those in favor of this constitutional change mainly focus on re-establishing re-election for mayors and legislators, some also propose to include governors into this reform. Rarely, however, have proponents advocated the re-election of the president.

43. **As the brief review above shows, a variety of proposals for reforming aspects of Mexico’s political institutions are being debated, and there are theoretical “pros” and “cons” to each proposal.** Although some reforms appear to be contradictory (greater presidential powers vs. introduction of a parliamentary system), in fact their purpose is mostly the same: to reduce the number of political checks and balances in the system, removing obstacles to more fluid decision making. All of the institutional changes under consideration also have the potential to substantially shift political incentives, particularly their incentives to appeal to narrow or to broad social interests. The direction of that shift, however, is ambiguous. Below we use cross-country evidence to see if there is clear empirical support for the impact of these political institutions on policy outcomes.

Empirical results.

44. **Results of our own regression analyses highlight some of the major policies in which Mexican performance differs substantially from other democracies, sometimes for the better, but often for the worse.** In the context of democratic consolidation and proposed political reforms, three questions arise in the context of those previous statistical analyses. First, are the political reforms under consideration in Mexico associated with broad differences in country performance across these variables? Second, do more consolidated democracies perform differently than others? And third, what happens to the “Mexico effect” when we control for institutional variables and democratic consolidation? That is, do Mexico’s political institutions and degree of democratic consolidation account for the significant deviation of Mexico’s policy performance from that of other countries?

45. **To answer these questions, we can take advantage of existing cross-country data on some of the institutional reforms under consideration in Mexico.**²⁹ We also have data on democratic consolidation.³⁰ The variables that capture specific characteristics of political institutions are added jointly to the regressions. The results are reported in Tables 5 and 6.

46. **Going through the questions asked above, first of all, we see that formal political institutions have inconsistent effects on outcomes.** In general the results are not statistically significant for the electoral system, political system and reelection variables. Reelection has some positive and significant impacts on tax revenues and infant mortality, but not with regards to other variables. There are some similarly sporadic results for the other variables that make it impossible to conclude that there is clear evidence

47. **The second lesson is that democratic consolidation does impact policy outcomes.** Countries that experience more years of continuous competitive elections also exhibit greater public health expenditures, less corruption and less infant mortality. In more consolidated

²⁹ We have data (from the Database of Political Institutions, Beck, et al. 2001) on whether a country has a presidential, semi-presidential or parliamentary system; whether its electoral system is based on plurality or proportional representation rules; on its average district magnitude (number of legislators elected per electoral district); and on whether the sitting executive can be re-elected.

³⁰ Democratic consolidation is measured using the number of years of continuous competitive elections a country has experienced, from the DPI. This variable captures the effect of democratic consolidation: the extent to which political parties and actors have had an opportunity to make and implement credible promises and, more generally, to make the institutions of democracy more generally acceptable and credible to citizens.

democracies, the incentives of politicians to satisfy broad public interests are greater and the political costs of self-seeking actions, including corruption, are also greater. Among the variables added to Table 5, it is precisely the introduction of the years of continuous competitive elections that substantially reduces the Mexican coefficient.³¹

Table 6: Political Institutions, Democratic Consolidation, and Policy Performance³²

		Public health expenditures/ GDP, 2003		Tax revenues/ GDP, 2000		Corruption (1- worst, 6-best), 2004		Infant Mortality, 2004	
Mexico (0-1)	<i>Mexico (0-1) excluding political controls</i>	.34 (.63)	-.84 (3.32)	-2.65 (.86)	-6.7 (3.10)	.07 (.30)	-.58 (4.43)	-5.97 (.87)	-12.55 (3.62)
Years of continuous competitive elections		.06 (2.20)		-.03 (.17)		.02 (2.81)		-.30 (2.60)	
District magnitude		.0003 (.10)		-.03 (.88)		-.0007 (.21)		.008 (0.18)	
Electoral system (0=proportional representation, 1=plurality)		-.64 (2.10)		.64 (.22)		-.11 (.55)		2.17 (.44)	
Political system (0=presidential, 1=semi- presidential, 2=parliamentary)		.37 (1.61)		-3.37 (1.43)		-.03 (-.26)		-3.30 (1.15)	
Can the executive seek another term? (0 if no, 1 if yes)		-.05 (0.11)		10.05 (2.21)		.32 (1.44)		17.47 (2.18)	
<i>N</i>		92		53		84		90	
<i>R</i> ²		.68		.24		.64		.71	

³¹ Of the political variables in Table 5, only years of continuous competitive elections is significant; hence, the interpretation that the introduction of this variable explains the drop in the Mexico coefficient. The same conclusion holds if one simply omits the institutional variables and focuses only on the addition of the consolidation variable.

³² Other non-political control variables were used, but not reported here: namely, land area, PPP-adjusted income per capita, percentage of the population under 14 and percentage of the population in rural areas.

**Table 7: Institutions, Democratic Consolidation and the Environment for
Job Creation in Mexico (2004)**

		Costs of starting a business/GDP per capita (%)		Index of difficulty of firing workers (0 – 100)		Costs of firing a worker/GDP per capita (%)		Index of employment rigidity (0-100)	
Mexico (0-1)	<i>Mexico (0-1) excluding political controls</i>	-40.22 (2.03)	-38.2 (4.56)	44.84 (5.06)	33.10 (7.87)	24.83 (1.76)	16.17 (1.87)	16.95 (2.37)	9.78 (3.12)
Years of continuous competitive elections		-1.06 (1.13)		.05 (0.11)		.17 (.22)		-.17 (-.51)	
District magnitude		-.01 (.14)		.09 (1.24)		-.18 (1.64)		.002 (.06)	
Electoral system (0=proportional representation, 1=plurality)		-20.36 (2.02)		-7.06 (1.43)		-16.34 (1.57)		-14.24 (3.38)	
Political system (0=presidential, 1=semi-presidential, 2=parliamentary)		-6.06 (1.21)		-7.17 (2.05)		-6.70 (1.20)		-3.82 (1.60)	
Can the executive seek another term? (0 if no, 1 if yes)		-5.68 (0.31)		14.08 (1.72)		1.00 (.07)		1.16 (.20)	
<i>N</i>		81		80		81		80	
<i>R</i> ²		.55		.27		.29		.33	

NB: The specification in this table is the same as in Table 6 and only considers countries with competitive elections. Other variables (income per capita, land area, etc.) are also controlled for here, but are not reported. Constants are not reported. A positive Mexico coefficient indicates the amount by which the actual Mexico outcome exceeds comparator countries; a negative, by how much it falls short of comparator countries. *t*-statistics in parentheses. White-corrected robust standard errors.

48. **The third result is that political explanations fully account for the deviations of Mexican spending and social indicators from the average, but not for the deviations in obstacles to doing business.** In the specifications of Table 6, which take into account a range of political explanations for cross-country differences in these variables, the Mexico coefficient is nowhere statistically significant and much smaller in magnitude. *Without* the political variables, Mexico is a statistically significant outlier for almost all of the variables. However, in the doing business indicators, it is more difficult to account for the strikingly low costs of starting a business in Mexico relative to comparable countries, and the significantly more rigid labor regulations that prevail in Mexico. The Mexico effect for these performance variables remains large and significant in all of the specifications of Table 7.

V. Overcoming obstacles to full electoral accountability and priorities for reform

49. There are limitations to this sort of cross-country analysis conducted in the previous section. **One clear conclusion is that political institutions matter, including simply how long democracy has prevailed, but there is no single institutional reform that holds the key to improving the policy-making process.** As democratic consolidation continues in Mexico, there are some practical innovations that can help enhance electoral accountability.

A) Special Interests as an Obstacle to Full Electoral Accountability

50. **There is no complacency in the voice of those who call out for long frustrated reforms in key areas; however, as in other countries, there are special interests that benefit from the lack of reform.** As is common elsewhere, special interests in Mexico help politicians with financial resources and with direct assistance in contacting and organizing voters. Politicians and citizens legitimately credit special interests with having expert information about the sector, but interests can exploit this for policy advantage. Special interests can themselves represent dedicated voting blocs, able to commit to vote on the basis of a single issue. These are all normal and unavoidable characteristics of democratic political competition that are present in even the most successful democracies. In Mexico, however, the legacy of corporatism and state-led capitalism where the well-connected thrived under state protection and rent-sharing has amplified the ability of vested interests to use extra-institutional tactics to influence policy.

51. **A logical way out of this situation would be to somehow weaken these vested interests, and simultaneously strengthen the weight of the influence of the general public.** Certain economic and sectoral reforms could achieve the first objective, although ironically it is these same reforms that the special interests block. Somehow establishing effective electoral accountability would achieve the second objective.

Public Sector Unions

52. **In general, special interests have more scope for extraordinary political influence in areas where the policy content is complex and where they can use extra-institutional pressure to impose large costs on society.** For example, in education and public security, the relationship between government inputs and policy outcomes are complex and particularly difficult to discern, even for experts, let alone for ordinary citizens. Reform efforts are handicapped by a lack of information about the connection between government inputs and policy outputs (public security and student learning). Even the ability of politicians to monitor effort and productivity is weak. For example, it is difficult to monitor how police officers behave on patrol or how teachers teach in classrooms.

53. Guerrero, Lopez-Calva and Walton (2006) show that **wages for workers that belong to unions are higher than for non-union members, controlling for the individual characteristics** (for example, education and experience) of workers. There is an interaction of this effect with the sectors that also are dominated by a monopoly or near-monopoly: in these sectors wages are even higher still.

Economic Elites

54. **With their concentration of wealth and close contacts with political elites, Mexico's economic interests are uniquely able to influence political outcomes.** It is evident that in the past their influence has been great. The extent to which competitive elections will reduce this influence is not yet clear. The 2006 elections had a very different character from the 2000 elections and have put greater pressure on parties to generate economic outcomes in the public interest. These groups' political influence is difficult to measure objectively.

55. **The economic impact of inefficient dominance of particular public utility sectors is documented in chapters 3 and 11 of this report.** In some cases, these sectors are still dominated by state-owned firms: for example, in electricity supply. On the other hand, one might have expected privatization of the telecoms industry to have resulted in prices, investment levels and a quality of service that is comparable to other Latin American countries, like Brazil. Evidence presented in Chapter 3 show that this is not the case.

Reform Priorities to Counter Special Interests' Influence in Politics

56. **An obvious policy priority that emerges from this analysis is to somehow curb the strong influence of special interests in Mexican politics.** This is obviously far easier said than done. Frontal confrontations are probably not necessary, and certainly not desirable. But combining specific transparency measures that bring behavior of these groups under the public light, and well-crafted sectoral reforms that over time change the organizational bases of their power and influence might offer a way forward.

57. The key role of information. Influence of economic elites could be countered, at least partially, with disclosure of key information related to government-business relations. One type of information is already collected in Mexico and needs to be more widely disseminated: the identities of contributors to campaigns. Another type of information is collected, but needs to be public: the assets of elected officials, their current and past income, and the business activities and customer base from which that income was generated. IFAI has also become an important agency for allowing public access to information, as discussed above. (See Annex 2 for more discussion of the role of IFAI.)

58. The scope for decentralized authority. Recent World Bank reports have documented that when decentralization truly allows for client "power" in the delivery of services, improved performance is common. This "power" can be exercised through choice, if citizens are allowed to choose among providers, or it can be achieved through direct participation. This is the "short route" to accountability that can work around vested interests' control of service delivery. As noted in Chapter 7, some initial experiments in this area are achieving results in the education sector. It should be noted that client voice is the key concept in this regard. Political and administrative decentralization can lead to a replication of limited electoral accountability at the state or local level.

59. Independence of regulatory agencies. As noted in Chapter 3 of this report, institutional reform in establishing the independence of regulatory agencies is common best practice in a number of countries. This independence is necessary to assure that the public's interest in cost

effective and quality goods and services prevails over private interests in seeking rents. This in turn would help increase levels of citizens' confidence on public institutions. Mexico has made great progress in recent years with the independence of the Central Bank and independence of financial sector supervision (see Chapter 2). Mexico has made great progress in recent years with the independence of the Central Bank and independence of financial sector supervision (see Chapter 2). Apart from the Instituto Federal Electoral (IFE) and the Mexican Central Bank (Banxico), all other regulatory bodies in Mexico are either decentralized or de-concentrated agencies - but in most cases they are not autonomous. Decentralized bodies can have their own resources, providing them with higher levels of independence from sector secretariats, but they have no enforcement authority, which in turn limits their ability to regulate effectively. In contrast, de-concentrated bodies cannot have their own resources, but they do have enforcement authority. Mexico would benefit from establishing truly autonomous regulatory bodies for which both economic independence and the ability to enforce their decisions are ensured.

60. Reform measures that increase transparency about the organizations and behavior of special interests and well-targeted economic and sectoral reforms that alter their organizational base over time may be able to chip away the excessive influence these groups. **But complementary efforts to strengthen the weight of the general voters in politics are necessary to overcome special interest influence in Mexican politics.** Key is to make electoral competition revolve around substantive policy issues that the general public cares about and to make politicians accountable for offering and, if elected, implementing their policy proposals in a credible way. Mexico appears to be on its way to develop a culture of electoral contests on the basis of alternative policy proposals. But this process is still incomplete, and faces certain obstacles. In this section, we highlight two of such obstacles, one related to Mexico's current state of political competition and the role of political parties and the other related to Mexico socioeconomic structure.

61. Strengthening the policy reputations of political parties. A key issue in building policy reputations for parties, an essential ingredient of electoral accountability, is to ensure (i) that the parties draw their support from a relatively broad constituency, especially in terms of geographic coverage (so that they would address issues of national concern rather than parochial interests of particular regions),³³ and (ii) that members of the party share the policy preferences espoused by the party and the party leadership, and that leadership is able to discipline the members (rather than individual "loose-cannons" with their own support base using the party label for

³³ The coherence and credibility of parties with respect to their policy positions is central for electoral accountability. This depends on the quality of the parties' policy proposals as well as on the degree to which the parties are united behind their announced policy preferences. The quality of policy proposals, especially when parties are in opposition, can be enhanced if parties themselves can rely on well-regarded policy analysis capabilities. This is often obtained through reputable think tanks (or foundations) associated with the parties. But it is not the mere presence of such think tanks that matters but also the quality and credibility of their analytical outputs. Many parties in Latin America are supported by think tanks of sorts that are directly or closely associated with them, but the quality of their outputs and the extent to which they are recognized as credible sources of policy proposals varies considerably across countries (Jones 2005).

convenience).³⁴ **Certain political reforms can enhance the policy consistency or “programmatically” nature of political parties.**

B) Overcoming Poverty and Social Polarization as Obstacles to Electoral Accountability

62. **Poverty constitutes another barrier to electoral accountability as it renders policy-based appeals less compelling than clientelist or populist appeals.**³⁵ Education also affects the desirability of electoral appeals based on policy proposals. Poverty and poor education, of course, tend to go hand in hand and reinforce each other. Sophisticated voter calculations and good knowledge of the policy making process are needed for voters to give parties credit for improving public service provision, such as higher quality education. In contrast, even unsophisticated voters can easily give credit to politicians for the provision of targeted transfers, local school buildings or jobs in government. Clientelist appeals should therefore be more attractive with less educated voters.

63. **One way to address this problem is to enhance the credibility of government institutions.** For starters, the independent federal electoral institute is one key institution at the core of the political process. Reducing corruption and enhancing the true independence of regulatory institutions are other key areas for building credibility. There are fundamental public administration reforms that can also improve government credibility: transparency of government procurement and management of the civil service, improved functioning and independence of the judicial branch, for example. In addition, publication of information on state level public sector performance is another area that can improve information flows and credibility. Annex 2 discusses more details of these reforms.

64. **To the extent the current political polarization has been fueled by either the perception or the reality of unequal distribution of the benefits of the past economic reforms, it will also be necessary to redress this situation over the medium to long run.** It will not be an easy task because any hint of re-distribution, which such a policy could possibly entail, would face resistance from those who have less to complain of the existing arrangement. An expansion of the successful *Oportunidades* program would be an obvious choice, but that is unlikely to be sufficient to make less developed regions (especially the poorer south) be able to

³⁴ IDB (2006) argues that three key characteristics of party systems that affect their role in policymaking are (i) the degree to which the parties are institutionalized; (ii) the degree to which party system is fragmented; and (iii) the degree to which parties have national, as opposed to regional, presence.

³⁵ Dixit and Londregan (1996), developing the implications of the observation that 100 pesos improves the welfare of a poor person more than that of a rich person, conclude that clientelist appeals are most effective with poor voters. Keefer and Vlaicu (2005) show as well that when clientelism is a more cost-effective way of gaining voter support – as when voters are poorer – politicians are reluctant to invest in improving their reputation across the entire electorate for supporting improved public good provision that benefits the whole electorate. Data supports the idea that programmatic parties are less likely in poorer democracies. The Database of Political Institutions (Beck, et al. 2001) records whether countries can be categorized as economically right, left or center, or as none of these. In 2000, 72 percent of the parties in 46 poorer countries with competitive elections could be placed in one of these categories, one standard deviation less than the 92 percent in 48 richer countries. The time a party has competed under a particular name is another approximation to its broad credibility. The DPI reports that the average number of years that a party has existed under its current name in rich democracies is more twice the number in poorer democracies: 47 years versus 23.

insert themselves in the globalized economy and be competitive. A more aggressive approach, such as a policy of regional compensation and centrally-funded support for infrastructure investment, would require additional fiscal revenues, and possibly an adjustment to the current fiscal federalism arrangement. A (nearly) fiscally neutral alternative is to work closely with state and local governments on improving the administration of their service responsibility and the management of their fiscal resources.

65. **Mitigating clientelism-inducing effects of poverty will be just as challenging.** In the long run, solutions will be found in achieving better education and raising income levels so that the voters are better equipped to cast their votes based on a good understanding of policy implications and they are less vulnerable to “particularistic” promises of politicians. In the short run, the most promising approach may be to strengthen civil society oversight of delivery of those particular programs that politicians have promised. Well-organized non-governmental groups could provide technical support for communities to inspect, for example, whether specific public works are carried out in a technically sound manner. Such an activity will not necessarily create political pressure for less particularistic policy responses, but they could still serve as a means of ensuring a degree of accountability by politicians to the community.

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Annex 1. Constitutional Reforms by Presidential Administration, 1988-06

Date/1	Reformed Articles/2	Concept
Carlos Salinas, 1988-2004		
06/04/1990	5, 35, 36, 41, 54, 60, 73	Electoral Reform
27/06/1990	28, 123	Banking Privatization
06/01/1992	27	<i>Ejido</i> Property
28/01/1992	3, 4, 5, 24, 27, 102, 130	State-Church Relations / Human Rights
05/03/1993	3, 31	Secondary Education
20/08/1993	28, 73, 82, 123	Central Bank's Autonomy
03/09/1993	16, 19, 20, 41, 54, 56, 60, 63, 65, 66, 74, 100, 107, 119	Increase of Senate seats / Electoral Reform
25/10/1993	31, 44, 73, 74, 76, 79, 89, 104, 105, 107, 119, 122	Mexico City's Local Congress / Judicial Branch
19/04/1994	41	Electoral reform
1/07/1994	82	Requisites for becoming President
Ernesto Zedillo, 1994-2000		
31/12/1994	21, 55, 73, 76, 79, 89, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 110, 111, 116, 122	Judicial Reform
03/03/1995	28	Communications and Railroads Liberalization
03/07/1996	16, 20, 21, 22, 73	Penal Reform
22/08/1996	35, 36, 41, 54, 56, 60, 73, 74, 94, 98, 99, 101, 105, 108, 110, 111, 116, 122	Electoral Reform (IFE Autonomy)
20/03/1997	30, 32, 37	Mexican Citizenship
08/03/1999	16, 19, 22, 123	Public Security
11/06/1999	94, 97, 100, 107	Judicial Branch Reform
28/06/1999	4, 25, 73	Environment / Sports / Civil Defense
29/07/1999	58	Minimum Age for Deputies
30/07/1999	73, 74, 78, 79	Federal Auditor General
13/09/1999	102	Human Rights Commission Functions
23/12/1999	115	Municipalities' competencies
07/04/2000	4	Children Rights
21/09/2000	20, 73	Victims' Rights / Congressional competencies
Vicente Fox, 2000-2006/3		
14/08/2001	1, 2, 4, 18, 115	Indigenous Peoples' Rights
14/06/2002	113	Compensation for damages by the State
12/11/2002	3, 31	Pre-Elementary and Higher Education
29/10/2003	63, 77	Vacancies and Extra-ordinary Elections
05/04/2004	73, 89	National Security
30/07/2004	74	Calendar for the Expenditures Budget
02/08/2004	65	Expansion of the Legislative Period
27/09/2004	73	Fishing and Aquaculture
20/06/2005	21	Recognition of the International Criminal Court
28/11/2005	73	State/Municipal courts' jurisprudence crimes
8/12/2005	46, 73, 76, 105	State geographical limits
9/12/2005	14, 22	Prohibition of Capital Punishment
12/12/2005	18	Under-aged crimes
7/4/2006	26, 73	National Planning System
14/09/2006	105	Human Rights

1. Date published on the *Diario Oficial de la Federación*

2. Transitory articles and errata not included

3. Up to September 14, 2006

Source: *Cámara de Diputados* (<http://www.diputados.gob.mx/leyinfo/refcns/>)

Annex 2. Public administration reforms and increased transparency

1. The end of the PRI hegemony coincided with increased access to information and avenues for citizen participation in government affairs. The passage of the *Ley Federal de Acceso a la Información* constitutes a key legal instrument to open the government to citizen scrutiny for improved accountability. The law was first formulated by civil society actors and approved with unanimity in Congress.³⁶ This law opened new and important spaces for citizen oversight and participation.

2. **The information access law, in some ways, was a product of the mounting pressure from civil society to demand greater access to public decision-making.** By the mid 2002s, a number of participatory mechanisms have flourished at the federal, state, and municipal levels.³⁷ Although there is a need for strengthening these mechanisms beyond the current situation and making sure that they do not become ritualized, civil society has made important progress in increasing its level of participation in policy formulation and oversight of public programs.

Box 1. The Federal Institute for Access to Information: IFAI

In order to guarantee the full implementation of the information access law and respond to the unexpectedly large demand, the government created the Federal Institute for Access to Information (*Instituto Federal de Acceso a la Información* – IFAI) as a decentralized agency with operational, budgetary and decision-making autonomy.

IFAI's main responsibilities include: (i) overseeing implementation of the Law and promoting access to information policies in the country; (ii) issuing regulations regarding terms and procedures for providing public information to citizens, as well as management of data and archives in Federal Agencies; (iii) guaranteeing the right of access to government information; (iv) protecting personal data and information administrated by federal agencies; and (v) analyzing and resolving denials of information requests issued by federal agencies. IFAI also has the authority to access any information without restrictions from any federal public agency or dependency, including confidential information. Since its creation, IFAI has focused on two areas deemed necessary to make the law effective and enforceable: (a) archives management, through the development and implementation of a normative and technical framework for the appropriate use and administration of information archives by federal agencies; and (b) developing and implementing an effective information system to track citizens' requests for information from federal agencies, ensuring prompt and adequate responses. Since the beginning of its operations in June 2003, over 120,000 requests for information were submitted to federal agencies and almost 6,000 of them appealed before IFAI. Information gathered through the Access to Information Law and enforced by IFAI led to the identification of corruption cases and violations to the environmental regulation.³⁸

This type of “independent institutes” is based on the model of IFE, the Federal Electoral Institute, created in the 90's, which turned out to be an effective vehicle in promoting accountability in election processes that culminated in the historic victory of President Fox in 2000. Following the path opened by the national FOIA and the establishment of the IFAI, 28 out of 32 federal entities have passed their own version of the freedom of information act and have put together state-level access to information institutes. In addition, Mexicans today discuss the “constitutionalization” of access to information as a fundamental citizen right.

³⁶ The law was passed in Congress on June 12, 2002.

³⁷ Isunza (2005) identifies 347 mechanisms for “state-society relations” that he categorizes in 6 types of “interfaces”: (i) contribution; (ii) transparency; (iii) communications; (iv) mandate; (v) transference; and (vi) co-management.

³⁸ For example, through the use of the Access to Information Law, Mr. Arturo Fernandez Lopez found out misuse of funds of the National Fund for Disasters. His case reached Congress, resulting in the destitution of the head of the agency. Mrs. Cristina Martin and Mrs. Vera Sisniega obtained information proving that the proposed construction of a segment of the Mexico-Acapulco highway violated environmental codes. This resulted in the modification of the design of the proposed work, which ended up respecting the law.

3. **Second, another important reform during the Fox *sexenio* is the passage of the Professional Civil Service Law, aimed at building a merit-based cadre of middle-level managers in the central administration.** This new legislation is intended to provide formal regulations to professionalize a critical segment of the public administration at the Federal Level. Some 63,000 senior staff and mid-level managers (a little more than 10% of the total) will be subject to a transparent accreditation process that would incorporate modern merit and performance-based evaluation systems to enhance overall capacity and efficiency within Federal agencies. The scope of the legislation is restricted, however, to a critical but rather small group of public servants. Other personnel from key sectors like teachers or health workers as well as the large portion of low-level staff (*trabajadores de base sindicalizados*) are still subject to pre-existing regulations and covered under rather protective labor legislation.

4. **Third, there have also been concerted efforts to reduce regulatory burdens on the private sector through agreed agenda of reform actions with Congress and the private sector.** In the context of the creation of the Competitiveness Committee, integrated by members of Congress and private sector leaders and led by the Office of the President, a number of administrative procedures were identified as critical for smooth functioning of a more dynamic private sector. Based on this list of demands and suggestions, the *Secretaría de la Función Pública* – in the context of the Good Governance Program – initiated a process to reduce these regulatory burdens. Although the process is ongoing, this dialogue turned out to be highly effective, resulting in the simplification of a number of administrative procedures. It also shows that there are real opportunities in Mexico to reach consensus among actors in a transparent way - when rules of the game are clearly established.

5. **Fourth, there have been reforms to public sector procurement processes.** The government has developed an internationally recognized online procurement system, called COMPRANET. The system both facilitates the administrative processes for participating in government bidding and it also provides information online on the status and results of the bidding. In the future, it would be desirable to expand the percentage of government contracts at both the federal and state level that are processed through the COMPRANET system.

6. **Fifth, there have been important reforms to the judicial system.** Major reforms were made to the federal court system in 1994 as a result of changes in the constitution. The reforms were aimed at improving the independence, efficiency, accountability and access of the federal system. These reforms were a consequence of broad changes in Mexican society including the quadrupling of the population between 1940 and 1990, and the shift of almost half of the working population from the rural sector to industrial and service sectors. These changes were also stimulated by Mexico's move towards economic liberalization reforms in 1980s when it joined the General Agreement on Tariffs and Trade (GATT) and negotiated the North American Free Trade Agreement (NAFTA) with the United States and Canada. Political change, where a PRI dominated government was forced to negotiate with opposition parties, induced reforms in the mechanisms for the settlement of electoral disputes and campaign financing. In 1996, the Supreme Court was granted the power to review the constitutionality of federal and state electoral laws (the *amparo*) enhancing judicial oversight and control. The transparency of the courts was strengthened in 2002 through the passage of the Federal Law on Transparency and Access to Public Governmental Information, which required courts to make available all information relating to their internal operations (e.g. the publication of decisions).

7. **The state judicial reform process began in 1995 and is still unfolding, with the scope and pace of reform varying greatly from state to state.** In the last few years key changes that generally mirror reforms to the federal system judicial have focused on efforts to strengthen judicial independence by ensuring that the selection and appointment process of state appeal court judges is professionally oriented. Training institutes have been established in most states for upgrading the skills of judges and staff. State judicial budgets have been increasing as a result of gains in the financial independence of state judicial branches. Many states have attempted to make monitoring and disciplining procedures more reliable and effective. About half the Mexican states have established a Judicial Council to increase efficiency in the management of resources. Access to justice has been strengthened primarily through the establishment of new courts. Many states (including the Federal District) are attempting to plan and modernize their operations and build their capacity to respond to business and societal needs. Some states are reforming criminal codes and introducing oral trials as a means of promoting transparency and efficiency in criminal justice.

8. **Despite this progress, there are presently many challenges constraining the performance of the federal and state judicial systems.** Public confidence is weak. A lack of access to the courts is a reality for the majority of the population—most notably women and marginalized groups including the indigenous and the poor. Court cases have increased in number and complexity. Delays in the enforcement of court judgments are commonplace. For example according to Doing Business 2007 Report, on average it takes 415 days to enforce a court decision in Mexico. While it takes 346 days in Canada, 331 days in France and 208 days in Sweden. The criminal justice system is blamed for being slow, and for very low conviction rates. The state court system lacks adequate financial, human and other resources to meet the accumulated and growing demand, and the institutional capacities of the state judiciaries are weaker than the federal courts, in terms of their human, physical and technological resources.

9. **The relationship between the federal and state judicial systems is at times tenuous resulting in coordination problems.** As the two systems are basically interlinked, some state judiciaries complain that interpretations by federal courts in *amparo* suits are inconsistent and result in delays. State courts complain that they hear commercial cases which should actually be heard at the federal level and that this erodes their scarce budget resources. Members of the Federal Judiciary complain that they are forced to do the job of state judiciaries because they must review many local decisions. The National Commission of State Courts (NCSC) responsible for promoting coordination and information exchange among state judiciaries and others lacks resources and institutional support.

Chapter 2: PUBLIC AND PRIVATE FINANCE FOR EQUITABLE GROWTH

Jozef Draaisma and Juan Carlos Mendoza

Equitable growth depends upon the efficiency and depth of the financial system. Neither the public sector nor the private sector can function without it. The government finances have improved over the last sexenio; however, some vulnerability remain in terms of reliance on oil revenues and indebtedness levels that could still be lowered in order to raise the sovereign credit rating.

The government's efforts to consolidate macroeconomic and financial stability and enhance the role of the financial system in efficiently financing the private sector and allocating risks to those better able to bear them have succeeded in solving many of the weaknesses of the financial system that were identified in 2001 during the FSAP³⁹. Looking ahead, it seems that the major challenge will be to finalize some of the reforms already in progress and to focus on new goals related to markets development, competition, and access to financial services now that concerns for stability have eased.

1. This report includes chapters that discuss government spending and policies in a variety of sectors, and chapters that discuss the business environment for private sector investment and innovation. **Both the public sector and private sector depend upon a lifeline of finance in order to conduct their activities.** Particularly in Mexico, there has been a close relationship between finance for the public sector and finance for the private sector. In Mexico, this relationship is driven by four factors:

- (i) Overall macroeconomic stability, heavily dependent on the state of public finances, is a pre-condition for correct functioning of the markets to provide financing to the private sector. Past economic crises trace their origins to the public sector's inability to balance its finances. The last such crisis decimated the financial sector and led to a decrease in private sector financing that still has not recovered the levels of the early 1990s. Though today Mexico has a solid and resilient financial system, it provides a very low level of finance to the private sector as a share of GDP when compared to other regional and international competitors of the country;
- (ii) The risk that international investors associate with the government's financial condition also determines the costs of financing of Mexican private firms accessing funds from overseas;

³⁹ FSAP stands for Financial Sector Assessment Program. **The Financial Sector Assessment Program** is a joint IMF-World Bank initiative launched in 1999 to provide member countries that request participation with a comprehensive assessment of their financial systems. Participation in the program is voluntary.

- (iii) A key economic sector – the oil and gas sector – is dominated by a government owned enterprise whose finances are tied to the government’s finance; and
- (iv) The government, through its own financial institutions, continues to have an important, though diminishing role, in financing subnational government activities and private sector activities – such as housing – in Mexico.

Public Finance

Introduction

2. **The public sector budget is possibly the most direct and powerful policy instrument through which a government may have an impact on society as it involves decisions on the level, composition and efficiency of public expenditure, taxation, and the financing of any shortfall between overall public sector revenue and expenditures.** Fiscal policy objectives are thus often framed in terms of its contribution to macroeconomic stability, economic growth and income distribution or poverty reduction. From the broad range of interrelated topics this involves, we propose to frame our discussion around the fiscal policy issues of public debt and fiscal sustainability, the management of volatile and uncertain oil revenue and the distributional impact of public finance in view of the recent progress made and the challenges posed for the formulation of fiscal policy in Mexico in the near future.

3. **Fiscal discipline and the management of additional oil revenue have been at the core of the annual budget discussions and fiscal policy as implemented over the past few years.** This is also reflected in the recently adopted federal budget and fiscal responsibility law that will govern fiscal policy discussions beginning with the 2007 budget. Together with Congress the incoming administration will have to frame its fiscal policy in terms of this law and will have to take decisions and provide interpretations in line with the broader concepts of the law. This section briefly reviews the recent fiscal policy performance and discusses the major fiscal policy issues in view of this performance and the federal budget and fiscal responsibility law.

Recent Fiscal Policy Performance

4. **Over the past six years, fiscal policy has been strongly focused on fiscal consolidation as part of an economic policy oriented to strengthen and maintain macroeconomic stability.** In tandem with a monetary policy implemented within the framework of inflation targeting, important progress in the attainment of macroeconomic stability has been made as evidenced by indicators such as a consumer price inflation (year-end) brought down from 9 percent in 2000 to about 4 percent in 2006, a depreciation of the nominal peso/dollar exchange rate by a modest 16 percent over the six-year period and domestic annual interest rates that are down from an average 15 percent in 2000 to slightly over 7 percent currently.

5. **Fiscal consolidation has taken place in terms of an important, gradual reduction of the traditional budget deficit as well as the broader Public Sector Borrowing Requirements (PSBR) deficit definition (Table 1).** The latter concept was introduced by the current

administration to account for off-budget public sector expenditures such as part of the interest due on liabilities acquired from the 1995 banking crisis, private sector financed investments in the energy sector (PIDIREGAS) and financial intermediation by government-owned development banks. The PSBR data used in this note also excludes non-recurring revenue.

	2000	2001	2002	2003	2004	2005	2006e
Budgetary public sector	-1.2	-0.7	-1.2	-0.6	-0.2	-0.1	0.3
PSBR	-3.9	-3.9	-3.4	-3.3	-2.5	-1.6	-1.6

Source: SHCP and Bank staff calculations.

6. **The term fiscal consolidation is used here to describe the fiscal deficit reduction that has taken place over the past six years.** This does not imply that the participation of the budgetary public sector in the economy diminished. As can be observed from the next table, the budgetary public sector actually managed to expand total expenditure by 1.5 percent of GDP while at the same time reducing its deficit by a similar amount (Table 2).

	2000	2006e	change
Budgetary revenue	21.5	24.5	3.1
Oil	7.0	8.9	1.8
Non-oil	14.5	15.7	1.2
Tax revenue	9.4	10.1	0.8
Non-tax revenue	5.1	5.5	0.5
Budgetary expenditure	22.7	24.3	1.5
Current	13.0	14.1	1.1
Capital	2.7	3.6	0.9
Revenue sharing	3.2	3.8	0.5
Interest	3.7	2.7	-1.0
Budgetary Balance	-1.2	0.3	1.5

Source: SHCP and Bank staff calculations

7. **Additional oil revenue, resulting from increased and higher-than-budgeted international oil prices over the past four years, is commonly thought of as the driving force of this fiscal performance.** Rearranging the terms of the last table one is able to observe that extra oil revenue has been responsible for less than half of the fiscal space generated over the past six years (Table 3). Other important contributors to the creation of fiscal space were lower interest expenditures, a reflection of progress obtained in strengthening overall macroeconomic stability, and higher tax collection, which can mainly be attributed to a higher collection of value added taxes thanks to, among others, improved tax administration.

	change (% of GDP)	% of total
Fiscal space	4.0	100.0
sources		
oil	1.8	45.7
tax	0.8	18.6
non-tax	0.5	11.4
interest expenditure	1.0	24.3
uses		
non-interest expenditure	2.5	62.0
current	1.1	26.0
capital	0.9	22.6
revenue sharing	0.5	13.5
deficit reduction	1.5	38.0

Source: SHCP and Bank staff calculations.

8. **The overall fiscal space has been used to increase public sector expenditure and improve the public sector balance, with somewhat more emphasis on the expansion of expenditure.** The increase in expenditure and, in particular, the increase in current expenditure, including revenue shared with subnational government which also tends to be largely dedicated to current expenses, often raises concerns about the “quality” of the public sector expansion and its ability to adjust spending downward in case of a downturn in revenue. In this regard, an increase of capital expenditure is often preferred to current expenditure as capital expenditure may contribute, more and more directly, to the build-up of public sector net-worth, and perhaps more importantly, capital expenditure is easier to cut in times of a sudden drop in revenue. Improvement in the public sector balance or deficit reduction contributes directly to strengthening of public sector net-worth as it translates in a lower build-up of debt and can, eventually, be reversed.

9. **From the sources and uses of fiscal space presented in the table above, one may conclude that the public sector managed to increase its “savings” by more than the increase in oil revenue through a combination of increased capital expenditure and deficit reduction, with emphasis on the latter.** This observation should not lead to a complacent view on the current fiscal policy stance as the initial target for the increase of public sector savings presented in the *Programa Nacional de Financiamiento del Desarrollo*, in absence of the current oil windfall, was of similar size. Furthermore, the current federal budget and fiscal responsibility law requires a budgetary balance or zero deficit which implies any reduction of oil revenue in the near future will require adjustment in parts of the budget.

Public debt and fiscal sustainability

10. **A major policy objective in an emerging market economy like Mexico over the past few years has been to strengthen macroeconomic and financial stability.** By establishing a continued track record of prudent fiscal management, Mexico enhanced the credibility of its commitment to a sustainable and declining public debt path. The improved market perception of public sector solvency has led to better access to financial markets which is reflected in superior sovereign credit ratings, lower sovereign spreads and longer public debt maturities. Improved access to financial markets is not only beneficial to the public sector, which will face lower debt

service requirements, but also to the private sector, for the terms at which it can access finance, and to the development of domestic financial intermediation.

11. **Over the past few years Mexico has been able to attain low and decreasing budget deficits and has decreased its gross public debt-to-GDP ratio from 49.3 percent in 2000 to an estimated 42 percent by the end of 2006.** The zero budget deficit requirement in the federal budget and fiscal responsibility law is yet another example of a broad awareness among policymakers about the role of sound and sustainable public finances in strengthening macroeconomic and financial stability as a necessary condition for economic growth.

12. **In a broad sense, fiscal sustainability is defined by the public sector's intertemporal budget constraint that requires the public sector to generate a net present value of future non-interest or primary surpluses higher or equal to the current level of debt.** This broad definition does not, however, establish clear criteria on the maximum or optimal level of public debt, nor by when gradual repayment of debt, through the generation of sufficiently large primary surpluses, should start. To make this concept operational, the literature tends to consider a fiscal policy stance sustainable if it does not entail an ever-increasing public debt to GDP ratio. Or, in other words, a fiscal deficit that keeps the public debt to GDP ratio at or below its existing level is often used as a critical measure of the public sector's solvency. Comparing the fiscal performance of Mexico in terms of fiscal deficits and the debt/GDP ratio with the requirements the literature poses on these indicators one may conclude that substantial progress was made in assuring the public sector's solvency and its movement to a sustainable built-up of public debt. Such a conclusion is confirmed by several other additional indicators such as the country's sovereign credit rating, the country risk spread and domestic interest rates that have all experienced a steady improvement.

13. **Going forward, Mexico faces important challenges to maintain longer-term fiscal sustainability.** A rapid reduction of proven oil reserves may require additional investment in the oil industry, imply higher production cost and reduce the (net) revenue generated by oil. At the same time, the public sector faces important public expenditure pressures in public health, education, pensions, poverty reduction programs and the provision of public infrastructure. The prospect of lower (net) oil revenue and increasing public expenditure both point to the need to gradually increase tax revenue and, where possible, consolidate and increase the efficiency of public expenditure. An increase of tax revenue should thus be the main focus of improvements in the area of tax policy and administration. And while the efficiency of public expenditure should be an area of permanent concern, the incoming administration may have a more immediate opportunity in the consolidation of public expenditure addressing the issue of public sector workers pensions.

14. Within this overall favorable picture of public debt and fiscal sustainability some additional considerations are worth taking into account. These include: (i) the definition of the fiscal balance, (ii) the level of public debt, and (iii) the structural strength of the country's public finances.

Fiscal balance

15. **Fiscal policy and budget discussions in Mexico tend to focus, almost exclusively, on the traditionally defined budgetary balance as the important policy variable for fiscal and public debt sustainability and the contribution of the fiscal policy stance to attain macroeconomic stability.** A recent example is the federal budget and fiscal responsibility law that requires a zero budget balance. This stands in contrast to the literature and several other countries where the primary surplus is the main policy variable in deciding on the overall fiscal policy. The primary surplus may be a more revealing variable, particularly in situations of high and volatile inflation.

16. **With inflation largely under control, the distinction between the overall balance and the primary balance may become less relevant.** In the case of Mexico, however, the traditionally defined budget balance does not include several off-budget expenditure items, some of which have surged over the past decade as a result of political decisions and accounting practices. As mentioned before, the Mexican government started to publish a broader concept of the public sector balance, PSBR, including the off-budget expenditure items such as part of the interest due on liabilities acquired from the 1995 banking crisis, private sector financed investments in the energy sector (PIDIREGAS) and financial intermediation by government-owned development banks. As these off-budget expenditures are generally related to liabilities that are fully guaranteed by the federal government, the more relevant concept to judge the fiscal stance would be the PSBR and its counterpart in terms of public debt, the *Saldo Histórico de Requerimientos Financieros*.

Figure 1: Evolution of the Fiscal Balance



Source: SHCP and Bank staff calculations.

17. **Other, additional fiscal indicators may be needed to reveal the nature and sustainability of a fiscal policy and avoid the optical illusion that a single indicator may provide or that accounting tricks may provoke.** These include indicators such as the non-oil fiscal balance, taking out oil revenue due to the depletion of an exhaustible asset and the volatile behavior of oil prices, and the structural balance, taking out temporary impact on public sector

revenues and expenditures resulting from the position of the country's economy in the business cycle.

Level of public debt

18. **An increase in public debt in emerging market economies as well as some high profile and costly debt defaults or distressed debt restructuring in the late 1990s and early part of the current decade has raised concerns about debt sustainability and the level of debt these countries can service.** The surge in the public debt-to-GDP ratio in the majority of the emerging market economies has been largely a result of interest and exchange rate movements and the recognition of off-balance and contingent liabilities. In this sense, Mexico has not been the exception as a large part of the current public debt has resulted from the 1995 financial crisis.

19. As mentioned above, the fiscal sustainability or solvency requirement does not provide any guidance on the maximum or optimal level of debt though several empirical studies attempt to determine thresholds for the debt-to-GDP ratio of emerging market economies (IMF 2003). **These show that the median public debt-to-GDP ratio in the year before default was about 50 percent of GDP.** Another exercise shows that the increase in the primary surplus weakens as the debt-to-GDP ratio rises in emerging market economies, and the increase stops altogether when debt exceeds 50 percent of GDP. Whereas an analysis of expected future primary balance based on performance in the past estimates a median level of debt of 25 percent of GDP in order to be consistent with the expected future primary balances.

20. Even though the estimation of thresholds for the public debt-to-GDP ratio is not without controversy and there is a lot of variation due to country specific conditions, the thresholds observed for emerging market economies are considerably below those for industrial countries and lower than the current debt-to-GDP ratios observed in a large number of cases. **Despite the progress obtained in the reduction of the debt-to-GDP ratio in Mexico, with a gross debt at 42 percent of GDP by the end of 2006 the next administration has a strong case to pursue a further reduction of the debt-to-GDP ratio in order to reduce vulnerability to adverse shocks and enhance macroeconomic and financial stability.**

Structural problems of public finance

21. **In its most comprehensive way, fiscal sustainability analysis implies the calculation of the public sector's net worth taking into account the present value of all future streams of public sector payments and receipts.** The depletion of oil reserves, cyclical fluctuations of national income and its impact on public finances, contingent liabilities and the quality of fiscal adjustment (i.e., whether or not overly concentrated on cutting public investment) all have an impact on those future revenue and expenditure streams. Even though a calculation of the public sector's net worth or the change thereof, is practically impossible to implement, the fiscal sustainability analysis can be enriched with qualitative and quantitative work on issues that have an impact on the future health of public finances.

22. **While there are a lot of issues that impact future public revenue and expenditure streams, we will limit the discussion here to the depletion of oil reserves, taxation and**

public sector workers' pensions. The reason for this choice is the size of the issues at stake that need to be taken into account in the formulation of public policy and, in the latter case, the possibility for policy action in the short term.

23. The economic rent obtained by the government from the exploitation of a nonrenewable resource differs from other revenue in that it partly represents a depletion of wealth. Considerations of long-run fiscal sustainability would generally imply saving a portion of the nonrenewable resource revenue in order to at least maintain the level of the public sector's net worth. Such saving could take place either through increased public investment, held as financial assets or by diminishing public sector debt. In order to incorporate these considerations in fiscal policy formulation in Mexico, **the budget discussions may benefit from including a limit or target on some definition of a non-oil fiscal balance.**

24. **Oil reserves are down to less than 11 years of production supporting the depletion of wealth argument for increased public sector saving and the concern about longer term sources of public sector revenue.** The amount of proven reserves fell significantly as a result of increased production and a more rigorous classification of reserves in 2003. Increased investments in exploration and development by PEMEX have not yet been able to stop the decline in proven reserves. As a result, current levels of production may not be sustained or the oil industry may require additional investment and experience higher production cost, in both cases leading to a reduction the (net) revenue generated by the exploitation of crude oil.⁴⁰ A higher level of uncertainty on the future level and cost of oil production is thus added to the longer standing issue of price volatility.

25. **Mexico needs higher tax revenues to cover the public expenditure that a more equitable and growing society demands.** In addition to the depletion of oil reserves that may require additional non-oil public sector revenue to substitute for oil revenue in the medium and longer term, there exists a broader consensus that the level of public expenditure in Mexico may be too low for the physical infrastructure and human capital needs of the country. The level of taxation in a country eventually reflects the collective preferences for public goods and services vis-à-vis private consumption and although there is no unique way to establish how high taxes should be, international comparisons may provide an indication of whether an adequate level of public services is being provided. In this regard, tax revenues in Mexico have lagged behind those in all other OECD countries and behind nearly all Latin American countries⁴¹.

26. **Mexico's tax structure contains many of the instruments of a modern tax policy as well as rates that are generally in line with its major international comparators.** The tax system underperforms, however, in its ability to raise adequate revenues as a result of many exemptions and special regimes that erode the base of the most important taxes, i.e., the VAT and the corporate and personal income taxes. In addition, tax administration has been the weakest part of Mexico's tax system which is reflected in high levels of evasion, cumbersome filing and payment processes and a complex tax code with frequent changes that creates confusion amongst taxpayers and makes the task of tax administration more difficult. The latest

⁴⁰ See Chapter 10 for a more detailed discussion of the oil sector.

⁴¹ See e.g. *Banco de México "Un Comparativo Internacional de la Recaudación Tributaria," 2003*

version of the World Bank's Doing Business report reveals that Mexico has low tax rates but high compliance costs relative to Latin American and OECD comparators.

Region or Economy	Payments (number)	Time (hours)	Profit tax (%)	Labor tax and contributions (%)	Other taxes (%)	Total tax rate (% profit)
Latin America & Caribbean	41.3	430.5	22.8	14.5	11.8	49.1
OECD	15.3	202.9	20.7	23.7	3.5	47.8
Mexico	49	552	5.3	30.2	1.6	37.1

Source: Doing Business 2007. Note: tax percentages above are as a percent of commercial profits.

27. **A broadening of the bases for the value-added tax, the corporate income tax and the personal income tax is the generally recommended orientation for tax reform in Mexico even though political agreement on this has proven elusive.** Higher-than expected oil revenue has made up for part of the revenue that was to be raised by such a tax reform though the uncertain and generally temporary nature of this windfall as well as the longer term issue of resource depletion has not removed the need for a tax reform that manages to increase public sector revenue in a sustained way in the medium term.

28. **Strengthening tax administration to facilitate voluntary compliance and to reduce tax evasion making intensive use of information technology has been the main orientation of a Bank supported project with the SAT over the past few years.** The successful implementation of this institutional development program has already contributed to an increase in tax collection and the number of taxpayers while reducing tax administration costs. Further improvements in the relationship between taxpayers and tax administrations and a continuous attack on tax evasion may not only increase tax collection but also improve the perceived fairness of the system and the public attitude toward taxation and the public sector.

29. **A reform of the public sector workers' pension system could significantly reduce the rapidly increasing amount of government transfers in the medium term.** The current federal system of public sector workers' pensions (ISSSTE) already requires an additional annual government transfer, on top of employer and employee contributions, of about 0.5 percent of GDP. Demographic change and a substantial imbalance between contributions and retirement benefits will increase these additional transfers to about 1.0 percent of GDP annually over the next decade. A reform proposal, including the introduction of a funded defined contribution scheme and a gradual increase of the retirement age, has been elaborated and discussions with the unions seem well advanced. The proposed reform also provides the option of current workers to change to the defined contribution scheme providing them with a recognition bond for past service.

30. **Estimates on the impact of the reform suggest a reduction of the overall government liability from 45 to 23 percent of GDP.** By introducing a funded component, contributions from and for workers included under this component are no longer available to pay current pensions which will increase the required government transfers during a transition period. In the case of ISSSTE estimates suggest a transition period of 4-5 years during government transfers to the system will actually be higher (Table 4). Though after this period additional government transfer are projected to diminish (as a percentage of GDP) as a growing number of retirees will draw their pensions from their accumulated savings. In addition, the recognition bond will increase the explicit public debt by about 13 percent of GDP. Financial markets are expected to be able to digest such an increase in the debt-to-GDP ratio as these bonds are replacing a larger contingent liability.⁴²⁴³

31. **Other public sector entities should be encouraged to reform their overly generous pension schemes.** In addition to the federal government's ISSSTE, there exist a large number of other pension systems and schemes in different public enterprises and entities, including state governments, which face similar problems of a large imbalance between contributions and benefits. Even though this is primarily a responsibility of these entities, the federal government may design some schemes of assistance that provide the right incentives to reform.

	2003	2004	2005	2006	2008	2012	2020	2040	2050
Without Reform									
billion pesos (2003)	21.2	25.1	29.6	34.9	45.4	72.0	133.8	254.0	299.8
% GDP	0.31%	0.35%	0.40%	0.46%	0.55%	0.77%	1.08%	1.03%	0.86%
With Reform									
billion pesos (2003)		38.0	39.0	39.6	41.7	47.1	59.5	53.6	47.1
% GDP		0.53%	0.53%	0.52%	0.51%	0.50%	0.48%	0.22%	0.14%

Source: SHCP and Bank staff calculations.

Management of oil revenue

32. **Management of oil revenue. High international oil prices have played an important role in attaining the fiscal targets in Mexico over the past few years.** The volatility of oil prices as well as the exhaustible nature of this source of revenue calls for caution in the dealing with such an unstable and uncertain revenue flow. The high proportion of public revenue generated from the oil sector in Mexico make the management of oil sector revenue a particularly relevant fiscal policy issue.

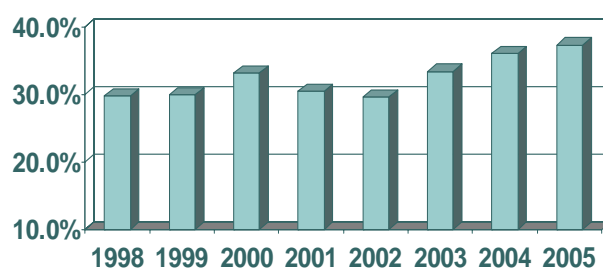
33. **Policy discussions on the oil revenue management have largely been focused on dealing with short term revenue variation due to international oil price volatility.** The economic rationale to focus on shorter-term oil revenue stabilization is to mitigate the need for costly, sudden adjustments of public investment and expenditure plans.

⁴² There are some other issues regarding the proposed reform from the perspective of financial supervision of the private pension system, and these are discussed in the private finance section below.

⁴³ This chapter was written in November 2006. In March 2007, a reform that broadly follows the features described here was approved by Congress. The data in Table 4 do not reflect the latest information.

34. **Public finance benefited over the past few years from the surge in oil prices though the unpredictable and often large fluctuations in oil prices pose important challenges for the formulation and implementation of fiscal policy.** Such challenges involve the estimation of the budget revenue and decisions on what to do in case of an excess or a shortfall of revenue in relation to the estimate. The issue is mainly one of efficient use of public resources as cutting expenditures upon a sharp downturn of revenue may be quite costly.

Figure 2: Oil Revenue Share of Public Sector Revenues, 1998-2005



Source: SHCP and Bank staff calculations.

35. **Despite the large share of oil revenue in Mexico's public finances, the impact of oil price fluctuations on the budget is mitigated by domestic energy pricing policies.** Domestic gasoline and diesel prices are being kept constant in real terms, thereby greatly moderating the variation of public sector oil revenue in case of oil price fluctuations. While an important buffer in case of a sudden downturn of oil prices, this policy has greatly diminished the excise tax revenue on gasoline and diesel to the point of turning it into a subsidy. A modification of the domestic pricing policy may be considered as part of a strategy to increase public revenue on a more permanent basis.

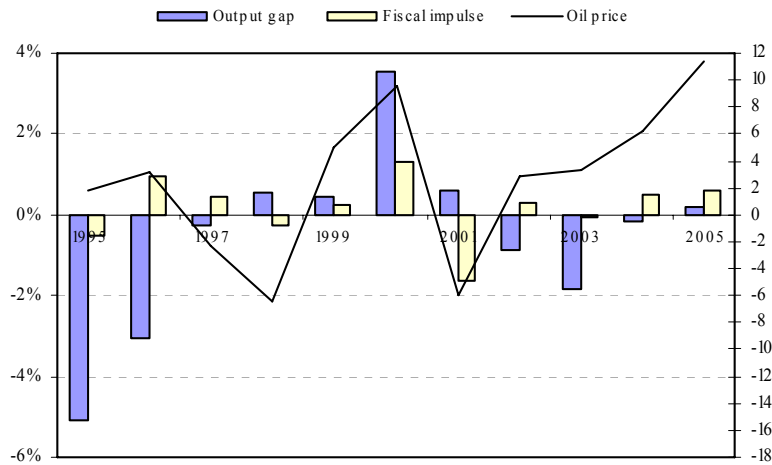
36. **Revenue stabilization funds to smooth expenditure adjustment are often advocated** and have been employed in Mexico as of 2000 through provisions on the distribution of excess revenue in the annual budget laws. The amount of resources accumulated through this mechanism has been limited due to changes in operating rules, a withdrawal of funds following low oil prices of early 2002, and the recent annual purchase of oil price hedging instruments. Revenue stabilization funds have been introduced in the federal budget and fiscal responsibility law giving the legislation a more permanent character.

37. **The strategy of employing oil price hedges to guarantee oil revenue should be continued and may benefit from a stronger public communication and increased transparency.** Much of the excess revenue transferred to the stabilization fund in 2004 and 2005 has been used for the purchase of oil price hedges in order to guarantee the federal government's budgeted revenue from the export of crude oil. The combination of a generally conservative budget estimate and an increasing oil price has implied a loss of money relative to the status quo of no risk management. As the political costs for policymakers from such losses may outweigh the benefits to be obtained at the time of an important price decline, broader support for this generally considered first-best solution for dealing with oil price volatility may benefit from a strengthened communication strategy and increased transparency. Advantages to be obtained from increased openness about the country's hedging strategy in domestic political economy terms should be weighed against concerns about the possible adverse alteration of market

conditions when market participants know the details of the strategy employed by a major player such as Mexico.

38. **Related to the management of a volatile public revenue source is the broader concept of the impact of fiscal policy on the level of economic activity.** Not unlike other emerging economies, Mexico's fiscal policies have not been oriented towards a smoothing of the fluctuations in the business cycle and may instead have strengthened such fluctuations in detriment of longer-term economic growth. Automatic stabilizers have been weak as oil makes up an important part of total revenue and the oil price has been somewhat negatively correlated with the business cycle. Moreover, the need to re-establish credibility in prudent fiscal management after several economic, financial and fiscal crises has been an important and compelling reason for this pro-cyclical fiscal policy performance. The latter may become less relevant as further progress in enhancing credibility is attained thereby allowing to include business cycle considerations in the formulation of fiscal policy.

Figure 3: Fiscal impulse, the output gap and the price of oil



Distributional impact of public finance

39. Public finance may have many objectives, including the redistribution of income and poverty reduction. Concerns about income distribution are often part of both public revenue and public expenditure policies. **Experience in many countries has shown that social spending, rather than heavily progressive taxation, is more effective in reducing poverty and income inequality.** That is why we propose to concentrate our attention on the distributional impact of public expenditure in these paragraphs.

40. **The distributional impact of public expenditure on households of different income levels can be estimated, at least for some types of public spending, by the use that different income groups make of public goods and services.** Such a benefit incidence analysis consists of the estimation of concentration coefficients for the distribution of public goods and services. These concentration coefficients range from -1 to 1⁴⁴, in which a negative value of the concentration coefficient indicates that spending is absolute progressive or pro-poor, i.e. lower income groups make use of or benefit more than proportionally from the government spending. A positive value indicates, on the contrary, that spending is regressive in absolute terms or that higher income groups tend to benefit more from the particular government spending. Where spending is absolutely regressive but less so than the distribution of private spending or income it is typically described as relatively progressive.

41. As presented in Figure 3 below, concentration coefficients have been estimated for a selected group of public expenditures on the basis of the income and expenditure surveys ENIGH of 2002 and 2004 and in line with the methodology employed in the Bank's Public Expenditure Review and Poverty Assessment (2004).

⁴⁴ The most common measure of incidence of spending is the concentration coefficient, which is a gini estimation obtained from a quasi-lorenz curve derived from the share of a particular spending category ranked by the per capita household spending of individuals.

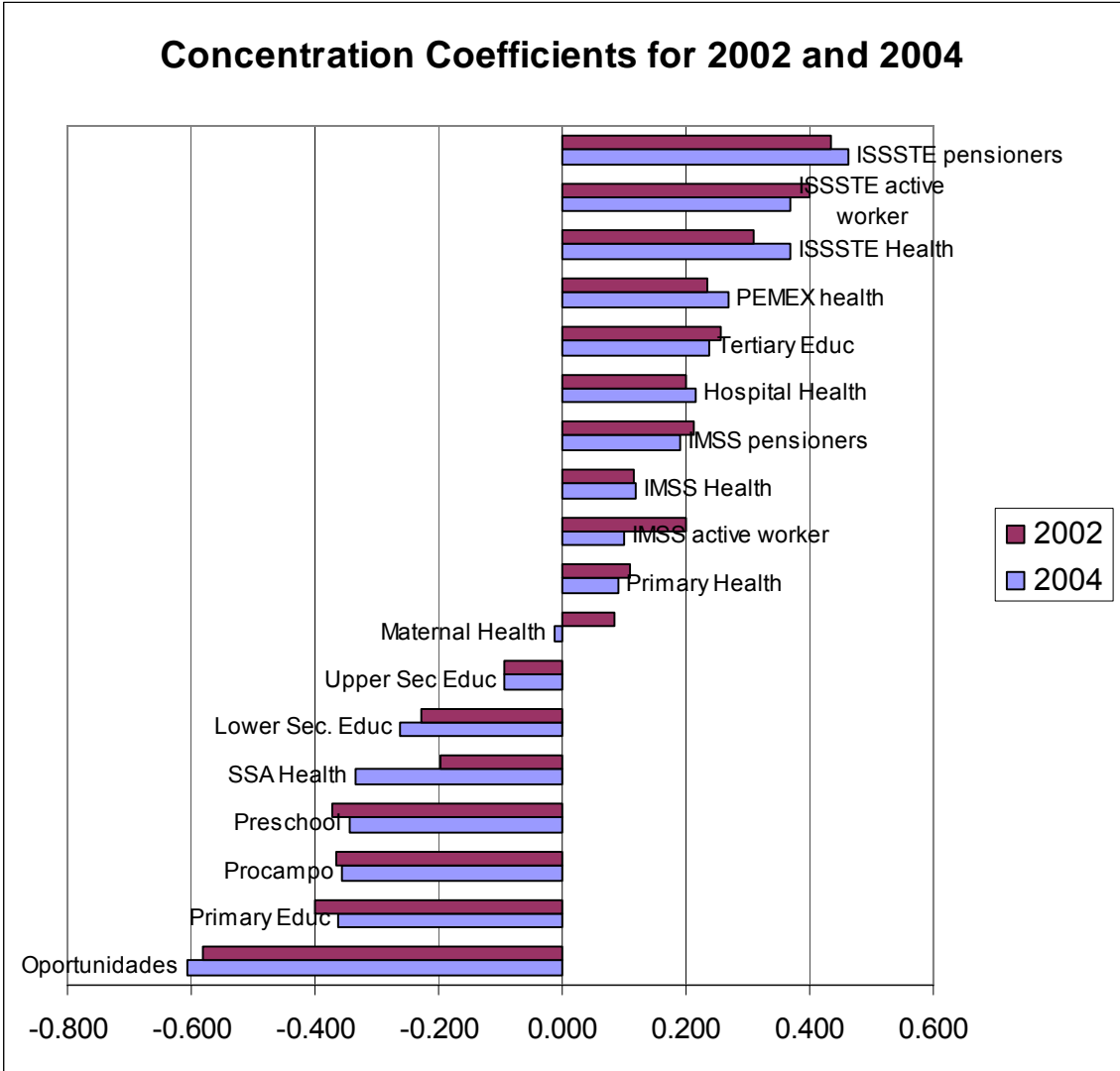
42. **While the impact of total public spending on the programs included in this analysis tends to be roughly proportional, there is an enormous variation in the incidence with some programs highly equalizing and others highly disequalizing.** From the ranking of different programs in figure 3 it becomes clear that public sector worker social security programs (health and pensions) are highly regressive. Tertiary education, hospital health and social security provided for formal private sector workers are also regressive in absolute terms, though less than autonomous spending or income. On the other extreme, the most “pro-poor” expenditure program clearly is *Oportunidades*, whereas pre-school and primary education can be categorized as broadly progressive public expenditure.

43. **The pattern revealed below has not changed much over the last *sexenio*.** This should not be surprising given that the targeting mechanism have not changed much over the period. The effects of new programs like *Seguro Popular* in the health sector are too recent for the household survey data used below.⁴⁵

44. The incidence of public expenditure should be taken into account when allocating scarce budget resources favoring adequate targeting of expenditures when feasible. At the same time in a country with a high income inequality such as Mexico **a proportional distribution of public expenditure may already have a significant equalizing impact** on access to goods and services by different (pre-tax and transfer) income groups.

⁴⁵ Please see Chapter 4 for a more detailed discussion of health sector spending.

Figure 4: Distribution of Government Spending



Source: World Bank staff estimates using ENIGH 2002, 2004.

Conclusions

45. **Mexico has made substantial progress in achieving an improved fiscal position.** Both public deficits and public indebtedness have declined over the *sexenio*. Markets have validated this performance by awarding sovereign credit ratings that qualify government debt as investment grade. Debt management has reduced vulnerabilities to rollover and currency risks by extending the average maturity of debt and lowering the foreign currency share of public debt.
46. **Budget discussions will start to take place within the framework of the fiscal responsibility law aimed at imposing fiscal discipline** through a zero budget balance requirement, a formula for the determination of the budgeted oil price and mechanisms to distribute and save part of additional revenue. Main challenges are the implementation of the law in line with its fiscal discipline objective, continuity of the law in time and additional regulation that may be needed in areas such as the operation of the revenue stabilization funds. The latter includes a stronger and more permanent policy of oil price hedging including increased transparency and public communication on such a strategy.
47. **A number of vulnerabilities remain.** The public sector depends quite substantially on oil revenues, while proven oil reserves—in terms of years of production—have declined. Higher tax revenues as a result of tax base broadening may not only substitute for falling oil revenue in the medium term but also cover additional public expenditure that a more equitable and growing society demands. On the public expenditure side, proposals for a consolidation of rapidly increasing outlays in the public employee pension system through the transfer to a funded defined contribution system are well advanced. While the political economy of such a reform might be complex, the economics of how this would both improve the long-term public finances and also improve the equity of public spending are imminently clear.
48. **Finally, the quality of government spending is a broader concern.** The various chapters of this report examine spending in the social sectors and infrastructure, and the problem of the quality of spending needs to be addressed on a sector-by-sector basis. In some cases, reforming the roles of the various levels of government or changing the design of intergovernmental transfers is the key to improving quality. Improving accountability and transparency of government spending is an area of concern in virtually all sectors. The details of these issues are covered in more detail in other sector-specific chapters of this report.

Private Finance

Introduction

49. **A decade after the crisis, Mexico has a stable financial sector but while some segments of the economy/population benefit from financial services as sophisticated of those of any OECD country, others do not have access to even basic savings accounts.** Following the crisis of the mid 1990s, government policies concentrated on cleaning up non performing loans of banks' balance sheets and generating the macroeconomic stability necessary to attract foreign capital into the financial sector. The success of these policies has left Mexico with a well-capitalized banking sector using risk management practices at international standard levels. Today, the local capital markets provide the entire range of financial products including increasingly complex derivative instruments and securitization bonds. On the other hand, in terms of GDP, total financing by banks to the private sector has dropped to about a third of the level it was at its peak shortly before the crisis. While the capital markets have taken some of the slack, total debt financing to the private sector has continued to shrink even during the last five years (i.e., well after the end of the crisis). The dearth of financing vehicles also implies a lack of savings mechanisms for households and of adequate investment and hedging instruments for individuals and firms, thus restraining growth and reducing employment opportunities. Even in Mexico City, only 24 percent of households report having a basic savings account.

50. **Most of the key challenges, which at the time concentrated on solidifying financial sector stability, in the sector identified in 2001 by the Financial Sector Assessment Program (FSAP) have already been addressed.** The 2001 FSAP found that sound macroeconomic policies, bank restructuring, and strengthened economic links with the United States made the Mexican economy and its financial system more resilient to shocks and provided a favorable environment for its development. At the same time, the assessment identified some issues that needed to be addressed by the regulatory authorities. These were: (i) relatively low bank financing to the private sector; (ii) the absence of clear rules to prevent a troubled institution from having access to the liquidity support of the Bank of Mexico (BOM); (iii) the lack of a prompt corrective action system to minimize the risk of bank failures; (iv) the need to reform the framework for bank resolution; (v) deficiencies in the strategic role, operations, and financial performance of development banks; (vi) the necessity to overhaul the framework for housing finance; (vii) the need to strengthen financial sector supervision; and (viii) the lack of adequate autonomy for regulatory agencies coupled with the need to improve the coordination of supervisory activities, the regulatory field for financial services across institutions, and the disclosure practices of some entities. During 2001-2006 the Government sought to consolidate macroeconomic and financial stability and enhance the role of the financial system in efficiently financing the private sector and allocating risks to those better able to bear them.⁴⁶ In doing so, they have addressed many of the weaknesses identified by the 2001 FSAP. A summary of the

⁴⁶ Key objectives of this reform program were to: (1) promote domestic savings, particularly lower-income and long-term savings; (2) further strengthen financial system regulation and supervision; (3) accelerate the modernization of the financial services industry; (4) facilitate the reactivation of bank credit; (5) deepen domestic stock and bond markets; (6) modernize development banks; and (7) consolidate the pension system.

reforms introduced between 2001 and 2006 is presented in Annex 1. The main challenge over the next six years will be to ensure that the benefits of this more solid financial sector reaches more broadly the population.

Overall Private Sector Financing

51. **The quantity of formal financing to the private sector has continued to be stalled in terms of GDP over the past five years (see Figure 5).** With the exception of consumer lending, which has been growing significantly and consistently since 2000, the earlier part of this period is characterized by deleveraging by firms and bad loan write-offs by banks. The strong recovery in commercial and mortgage financing (especially over the last year) is partly masked by the concurrent contraction of restructured loans (both performing and non-performing). Mexico's level of private sector financing remains low compared to other countries in the region (see Figure 6).

52. **Loan quality has improved considerably.** Loan origination standards have risen, nonperforming loans have declined (from over 3 percent of total gross loans in 2000 to below 1 percent in 2005), and debt contracts in local currency with longer maturities and durations have expanded.

53. **Financing supply has shifted toward domestic non-bank providers.** As a matter of fact, private sector financing by banks dropped from a peak of 39.9 percent of GDP in 1994 – a level which was probably associated with an irrational bubble – to 11.5 percent of GDP in 2004. Public sector involvement in private sector financing remains important. Development banks have substituted first-tier with second-tier lending, and they have significantly increased the volume of partial guarantees aimed at promoting lending to underserved market segments. Non-deposit taking credit institutions (Sofoles) and the Institute of the National Housing Fund for the Workers (INFONAVIT) dominate the mortgage market, although there has been a recent resurgence of mortgages financed by commercial banks.

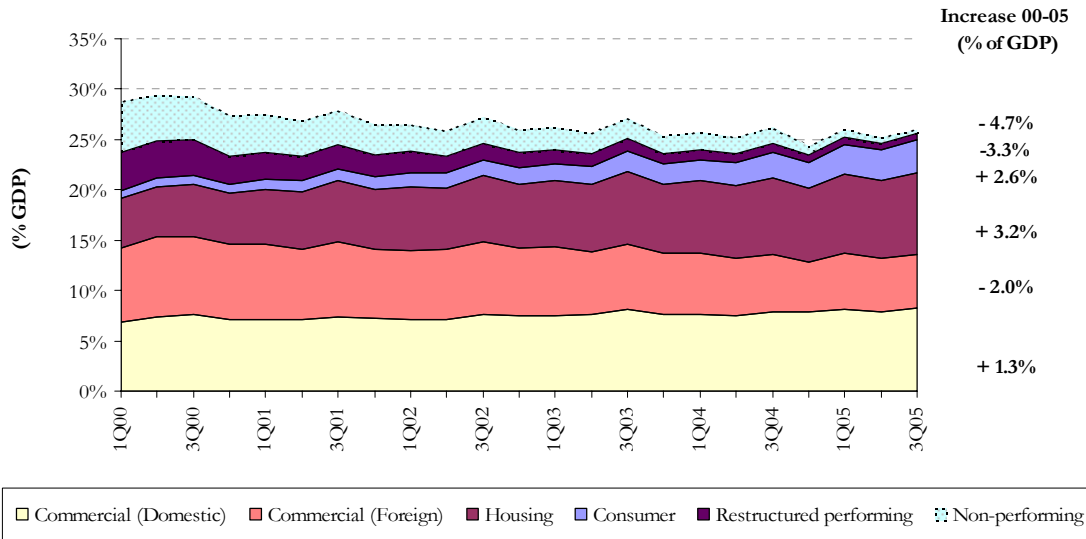
54. **Domestic capital markets have played a relatively limited role in the recovery of private sector financing.** Domestic capital markets, including equity and debt issuance, developed quickly during the first half of the 1990s when they went from financing less than 1 percent of private investment to more than 6 percent in 1993 before contracting as result of the crisis. Since then, domestic equity markets have played a limited role, while the private debt markets have started to recover since 2003 and have supported the development of financing and investment alternatives for non-bank financial institutions and pension funds. On the other hand, in part thanks to a more stable macroeconomic environment, the government has been able to develop the local public debt market, reducing its dependence on foreign debt. This has helped to develop a benchmark yield curve which should help to facilitate the pricing and, therefore, expansion of private sector issuances.

55. **Supplier finance has made up for some of the needs not addressed by the financial sector.** According to a BOM survey of corporate financing patterns (see Figure 7), supplier credit has expanded at the expense of commercial bank financing in recent years.

56. **The prospects for continued private sector financing growth are positive.** This favorable assessment is based on the improvements in the legal, regulatory, and accounting frameworks; well-capitalized, well-managed, and profitable banks; expansion of the institutional investor base; dynamism in the local markets for debt and asset-backed securities; vigorous financial innovation throughout the financial industry; and, so far, low leverage among firms. However, financing prospects are not necessarily uniformly positive across all market segments. Since large Mexican firms are able to directly tap international capital markets and have more established relationships with the local banks, it has been the small and medium-sized firms that have borne the brunt of this adjustment (See Figure 8). However, the emergence of a strong and profitable commercial banking sector provides a good foundation to revitalize financial intermediation going forward. Cross-border opportunities stemming from emigrants' remittances and the expansion of credit to underserved domestic segments will likely remain a priority for banks, which are eager to reach credit penetration levels that are comparable with those of regional peers. This is also desirable given the relatively small proportion of the population that is currently served by commercial banks.⁴⁷ In that respect, the likely entry of new, mostly niche banks in 2005-2006 is a welcome development.

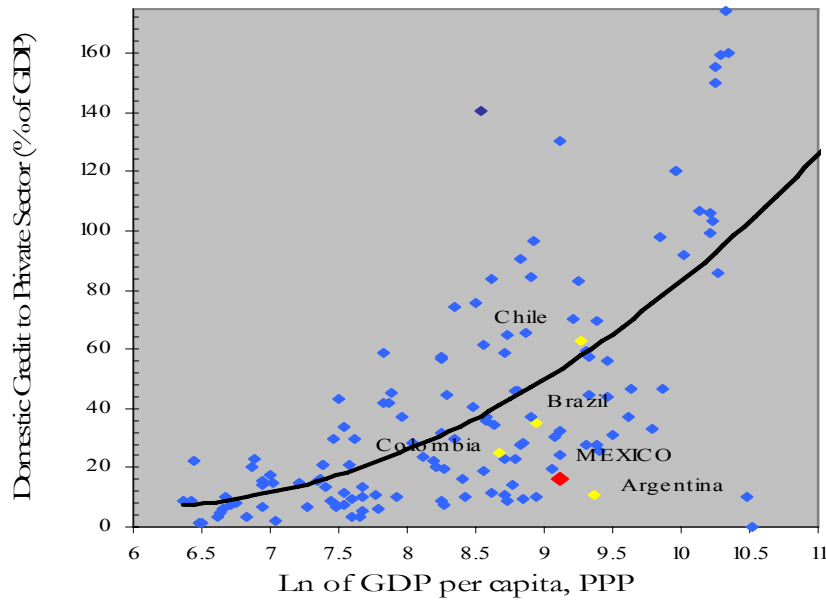
⁴⁷ Branch penetration is relatively low (around 12,500 inhabitants per commercial bank branch), while it is estimated that around 20-25 million people, or less than 50 percent of the economically active population, hold commercial bank accounts.

Figure 5: Total Debt Financing (Domestic and Foreign) to the Non-Financial Private Sector (percentage of GDP)



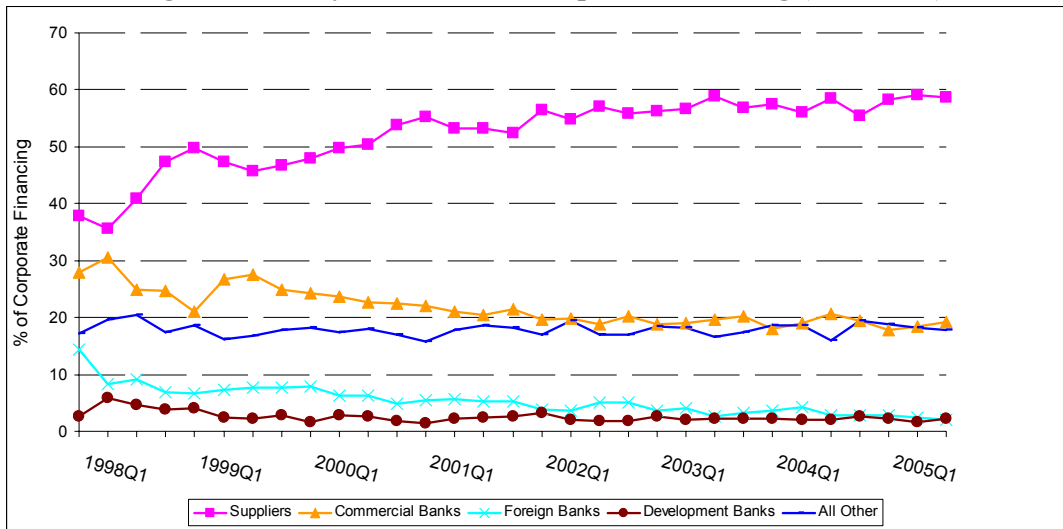
Note: Equity financing, FIRA and *Financiera Rural lending*, mortgage loans by FOVISSSTE, and asset-backed securities are excluded. Commercial, housing and consumer financing include only performing loans. Domestic bond issuance is treated as part of domestic commercial financing and only includes outstanding bonds issued by non-financial private sector firms. Foreign commercial financing consists of cross-border bank lending and bond issuance abroad.

Figure 6: Domestic Credit to Private Sector and GDP Per Capita (2004)



Source World Bank World Development Indicators and GDF Database

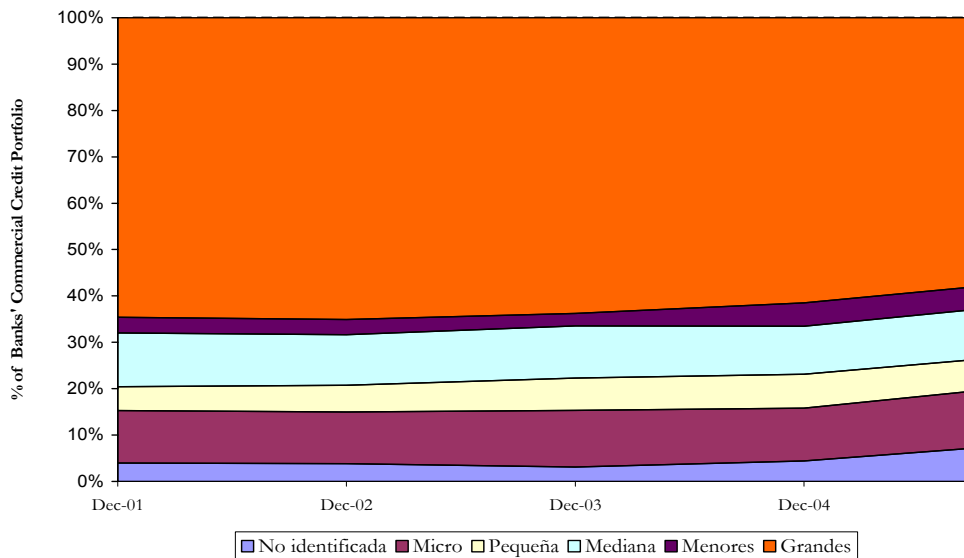
Figure 7: Survey on Sources of Corporate Financing (1998-2005)



Source: Banco de México

Figure 8: Outstanding Commercial Banks Credited by Borrower Size

Outstanding Commercial Bank Credit by Borrower Size
(2001Q4–2005Q3)



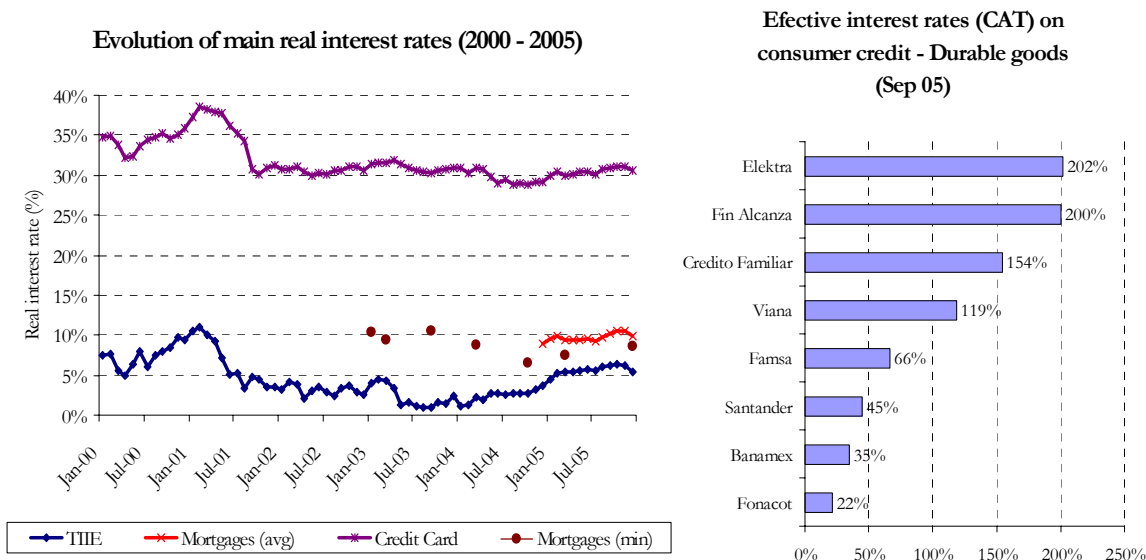
Source: BOM's SENICREB database cross-referenced with information from Secretary of Economy's padron SIEM and Expansion 500 databases.

57. **Effective competition in payment services and credit markets are important for minimizing costs of financial services.** Technological innovations in communications, information management systems, and payment systems allow for significant reductions in start-up and operation costs of financial intermediaries. This has translated into considerable efficiency gains in the Mexican financial system. Although substantial improvements were achieved in competition and efficiency, especially in the large-value payments area, the retail payments sector is still underdeveloped compared with other countries in the region or in the same stage of development. In the retail payments area, competition seems to be focused on

aspects related to access to the infrastructure (which reduces efficiency) rather than on fees, prices, and quality of service. This tends to limit the achievement of economies of scale and network externalities, reduces consumer mobility, and leads to relatively high fees and low services.

58. **Available indicators on prices are inconclusive to assess changes in credit affordability, although there remains a significant divergence in rates for like credit products across lenders.** Limited availability of historical interest rate time series by credit product and the questionable reliability of existing ones, constrain any conclusive evaluation of affordability.⁴⁸ Available data suggest that, after an initial decline in early 2001, real interbank interest rates (used to price commercial loans) and credit card rates have not declined significantly. However, longer maturities and durations have become much more available in the debt markets. At the same time, there is strong market consensus that mortgage interest rates have fallen and mortgage maturities have increased considerably since 2000, but an official interest rate series has only recently begun to be published. Different lenders (banks, Sofoles, and department stores) charge widely disparate interest rates on similar types of consumer credit, suggesting market segmentation (i.e., limitations on alternative financing sources for low-income versus higher-income households) or insufficient consumer awareness on rates, despite the requirement on lenders to disclose the so-called CAT (total annual cost of credit).

Figure 9: Real Interest Rates and Comparison of Effective Rates (CAT)



Sources: BOM, CONDUSEF, SHCP, and Infosel.

Note: CAT (*Costo Anual Total*) is the effective interest rate used for comparative purposes that includes all direct annualized costs of a loan excluding taxes and third party expenses (e.g., notary fees).

⁴⁸ For example, the quoted real interest rate on credit cards has remained fairly stable and relatively high in the last few years. However, the ‘headline’ rate does not capture the evolution in credit card commissions and masks the diversity in credit card types and terms that currently exist in the market.

59. **The authorities may wish to consider the following recommendations to facilitate deeper and broader financing of the private sector.** A short-term policy measure would be to promote greater use of the credit bureau for SMEs—in particular by ensuring that the credit history of all SME loans is captured appropriately by the credit bureau.⁴⁹ The authorities should promote further improvements in the governance structure of the credit bureaus, to ensure open access subject to basic privacy safeguards. Additionally, the authorities should collect and disclose standardized credit affordability indicators (i.e. interest rate time series by type of loan product and by provider) as well as of accessibility indicators (i.e. loan volumes by products, firm size, economic sector and state).⁵⁰ Improved data collection and analysis would help understand the connection between developments in the real sector and financing patterns, the role of financing sources outside the formal domestic financial system, and the nature of competition issues in different credit markets (e.g., via a more detailed chart of accounts that would capture bank costs and revenues by loan product). Also, the authorities should evaluate the effectiveness of development banks' support of SME finance, including with respect to the design and targeting of partial guarantees. Longer-term policy recommendations would include further strengthening of public registries of commerce and property and the reduction in their user cost (notaries); stronger and more consistent enforcement of creditor rights across different state jurisdictions; and further simplification of the regulatory environment related to SME lending without compromising prudence. The feasibility of tapping capital markets via innovative SME-loan securitizations should also be assessed in light of the ongoing growth in institutional investor assets.

60. **Additional reforms to continue fostering competition in payment services should be considered.** The authorities could consider further measures to foster a better balance between competition and cooperation in the payment services sector. These measures would aim at: (1) reducing the role of bank branches in bill payments and remittances, and enhancing the role of nonbank service providers, such as department stores, especially in rural areas; (2) enlarging employees' freedom to choose the bank where they can receive wage payments electronically; (3) eliminating barriers to the provision of services using common platforms, such as direct debits and payroll schemes via CECOBAN (the inter bank clearing center); (4) ensuring interoperability between retail payment networks and/or seeking to integrate the different service providers; (5) fostering the adoption of CHIP-NIP technology to promote the use of debit cards in point-of-service (POS) terminals; (6) changing the law to give EFTs (Electronic Funds Transfers) the status of legal tender and coordinating with the MOF the substitution of checks with EFTs for social benefits, pensions, and salaries; (7) allowing more financial intermediaries to be direct participants in SPEI; (8) promoting public trust in the use of electronic payments through education and consumer protection programs; and (9) fostering efficient and fair conflict resolution schemes with respect to payment services.

61. **Promoting more competition in credit markets could also have a positive impact on credit supply.** The analysis of competition in different credit markets is hindered by lack of data as most of the framework for Mexican bank accounting, reporting, and statistics was designed

⁴⁹ For instance, loans to SMEs that involve invoice discounting are currently recorded by banks in the credit bureau as loans to large corporations to whom the SMEs act as suppliers.

⁵⁰ One issue that will need to be addressed in this connection is the institutional responsibility/mandate for the creation and publication of such indicators. Some indicators of this type are already produced by BOM and CONDUSEF.

for prudential and stability purposes, rather than to facilitate the study of efficiency and competition. To be sure, the Mexican banking system is much more transparent now, and information on loan amounts by type, aggregate financial income, aggregate fees, and aggregate costs is readily and publicly available. For instance, the BOM publishes through its website detailed comparisons of costs of mortgage, consumption, and deposit products. However, finer distinctions are needed to discriminate costs, income, and risks by credit product, so as to follow the patterns of competition in different credit markets. Finer information is also needed to discriminate between market power factors and excessive risk taking behind lending spreads and credit allocation. Competition seems to be higher in markets for credit contracts that depend relatively less on the quality of the local contract enforcement institutions. This is clear in the large corporate segment of commercial lending, where the credit market features creditworthy and well-known borrowers, global players, and contestability from the securities markets. In the credit card market, the use of the local credit infrastructure is made unnecessary by the use of credit scoring systems (based on the credit bureau information) and the absence of collateral requirements. However, competition in the credit card market occurs mainly through product differentiation and there appears to be insufficient price competition. The markets for mortgage and car loans, amenable to credit scoring methods, have benefited from an increase in nonbank financial intermediaries (i.e., Sofoles) and greater transparency. Competition in these markets appears to be growing.⁵¹

62. Conversely, there is significantly less competition in credit markets where the use of the local credit infrastructure cannot be avoided. The market for SME lending is a salient example. Players in this market are mostly local, global knowledge and loan technologies are less useful, the costs of gathering information are high, and scoring methods are less applicable due to SME heterogeneity. Credit contract enforcement and collateral repossession processes cannot avoid the local judiciary and are further hampered by deficiencies in movable property registries and informality. This said, financial innovation, which is often geared toward coping with deficiencies in the local credit infrastructure or avoiding regulatory costs, can help boost competition despite such deficiencies. For example, credit cards for micro enterprises or electronic factoring of SME claims on large corporations are arguably examples of this type of innovation in Mexico. Credit cards for micro enterprises treat the firm as a consumer to avoid regulatory costs and the credit infrastructure. Electronic factoring allows the booking of SME receivables as loan exposure to the large corporation that buys products from SMEs. The recommendations discussed in the previous section—regarding the financing of the private sector—apply also to fostering greater competition and efficiency in credit markets.

Access to basic financial services to lower income segments

63. Access to financial services in Mexico is limited and costly. The penetration rate is low and participation rate in formal financial markets are below those in other LAC countries of lower per capita income. In fact, in Mexico City, only 23.6 percent of the population reported

⁵¹ A modernization of the legal framework for Sofoles and leasing and factoring companies was very recently approved. The changes aim at enhancing efficiency in the supply of credit products through competition. Among other things, this reform allows Sofoles to become multi-purpose societies (i.e., Sofomes). It also permits any non-deposit taking company to carry out credit activities as well as leasing and factoring operations, without having to be subject to banking prudential norms. If the non-deposit taking company is related to a bank group, however, it must comply with all prudential norms applicable to banks.

that they had savings in a bank. “Unbanked” individuals (i.e. those who do not have a deposit account in a formal-sector deposit institution or have not received credit from it) in Mexico are characterized by lower incomes and education levels than the population at large. The unbanked tend to rely on cash transactions, services provided by commercial outlets, informal forms of saving and borrowing, and government programs to obtain financial services. Their lack of access to formal financing entails high transaction costs for them, particularly in areas relating to payments for utility services, remittances from abroad, cashing of checks by non-bank account holders, high interest rates on alternative credit, and low earnings on savings.⁵² Moreover, limited access to the formal financial system can also create costs for the economy as a whole, slowing growth as the savings of unbanked individuals fail to be channeled to productive investment opportunities.

64. Although most unbanked individuals do not try to open bank accounts, they believe they need one. They cite lack of sufficient resources, minimum balance requirements, and lack of trust in banks as reasons for not attempting to open a bank account. Regarding credit, most people whose applications for a bank loan were denied believed that this was due to the risks associated with the loan.⁵³ On the other hand, most individuals who do not apply for credits believe that they do not need them or prefer to finance their purchases out of their income flows.

65. Two policy actions to improve access have been particularly innovative and promising. The first consisted in strengthening “popular” banks (which traditionally served moderate income households, providing credit and deposit facilities) by improving their supervision and creating BANSEFI (Banco del Ahorro Nacional y Servicios Financieros, *National Savings and Financial Services Bank*) to coordinate the reorganization of all popular financial intermediaries and to serve as a development agency for these institutions (see discussion below under *Development Banks*). BANSEFI has created a commercial alliance among several popular savings and credit institutions called L@Red de la Gente (The People’s Network) to share branches and facilitate the distribution of financial products through a common technological platform, helping to generate homogeneous products that are offered under an umbrella trademark, significantly reducing distribution and marketing costs. The network also distributes government programs and operates with traditional money transfer companies that use its network to distribute remittances, thereby increasing the revenues of member institutions through distribution fees and helping to attract new customers. Second, the government is also seeking to address lack of competition in the banking system, which likely contributes to high bank fees and the high percentages of people outside the banking system through programs seeking to increase price transparency of financial services through Condusef (*Comisión Nacional para la Protección y Defensa de Usuarios de Servicios Financieros*) which facilitates price comparisons for retail banking products and supports basic financial literacy programs. In addition to continuing to foster increased competition in the financial sector, as discussed above, the government should continue strengthening BANSEFI and Condusef and the implementation of the *Ley de Ahorro y Credito Popular* which is supporting the strengthening of the popular banking sector (see discussion below under *Development Banks*).

⁵² Accumulated costs of being unbanked can run up to 15 percent of median income in Mexico (without including credit costs).

⁵³ These risks were caused by lack of credit history, insufficient or unsteady earnings and lack of collateral or an outside guarantee.

Development Banks.

66. **Substantial progress has taken place over the last five years in reforming the system of development banks and funds (DBs).**⁵⁴ The 2001 FSAP emphasized that DBs suffer from an inherent tension between their social policy mandate (i.e., to foster access to financial services for households and firms that are costlier and riskier to serve) and the objective of avoiding losses in their bank-like activities. To overcome this tension, the 2001 FSAP team recommended a reform strategy based on separating subsidies from finance, consolidating DBs, and gradually transforming them into development agencies (DAs).⁵⁵ Since then, progress has been remarkable. DBs are now regulated and supervised with the same rigor as private banks. DB governance and accountability, managerial professionalism, and transparency have greatly improved. DBs must now pursue their mandates subject to the explicit requirement of preserving their capital in real terms. Interest rate subsidies in DB loans have been reduced while an increasing share of subsidies is financed through the government's budget. Lending by DBs has significantly shifted from the first tier (or direct lending) to the second tier (or lending through private financial institutions), bringing a higher number of private financial intermediaries to the system. The coverage of partial guarantees has been declining, from levels of 80 percent or more to about 50 percent on average. As a result of all this, DBs in recent years have been consistently reporting strong capital positions and positive results in their income statements.⁵⁶

67. **The depth and breadth of reform in other respects has been very uneven across DBs.** Greatest progress in integrating objectives, mandates, functions, and instruments has been registered in the cases of *Financiera Rural*, FIRA⁵⁷, BANSEFI, and SHF, all of which operate largely as development agencies. The salient features of SHF are discussed under the Housing Finance section of this note. *Financiera Rural* (created after the liquidation of *Banrural*) and FIRA have well-defined mandates and are prohibited from issuing deposits and, in the case of *Financiera Rural*, any other form of liabilities. They fund their lending activities (which are exclusively second tier in the case of FIRA) out of their endowments and loan collections. They promote capacity building among their target clientele via matching grants used by recipients to hire technical assistance. *Financiera Rural* lends at market prices and so does FIRA in its loans to large farmers; however, FIRA's lending to the poorest farmers is still at subsidized interest

⁵⁴ The Mexican *Sistema Financiero de Fomento* includes development banks and trust funds (*fideicomisos*). At present, the main components of this system are: *Financiera Rural* and FIRA, both oriented towards the rural sector; NAFIN, which works mainly with SMEs; BANCOMEXT, charged with promoting and financing exports; BANOBRAS, which finances subsovereign entities; BANSEFI, which focuses on technical assistance and other risk-free, centralized services to popular savings and credit institutions; SHF, which spearheads the development of the housing finance markets and provide second-tier funding to mortgage lenders (until 2009).

⁵⁵ Finance-oriented DAs promote financial access for underserved sectors and market development through market-friendly instruments that do not distort market prices or discourage private sector activity. DAs are subject to high standards of transparency and accountability. They typically provide or mobilize TA and may administer matching grants and subsidies that are financed by the government's budget. They may also provide partial guarantees (subject to appropriate pricing and risk management), support the development of market infrastructures, and/or catalyze or coordinate structured finance packages. Their lending, if any, tends to be second tier and funded out of their initial endowment (capital) or budgetary appropriations (i.e., DAs do not normally issue deposits or other forms of liabilities).

⁵⁶ The only exception is BANCOMEXT, which continues to make losses on account of its export promotion activities (see below).

⁵⁷ FIRA stands for *Fideicomisos Instituidos en Relación con la Agricultura*, which are fiduciary funds housed in the Bank of Mexico.

rates. FIRA also offers partial guarantees at subsidized prices, although it is implementing a program to phase out the subsidy element therein.⁵⁸ More recently, FIRA has engaged in innovative investment bank-like activities—coordinating large structured finance operations by aligning incentives and distributing risks among participants, and offering interest rate and currency swaps, all at market prices. BANSEFI, created in 2001, has the mandate of promoting popular savings (a function inherited from its predecessor, PAHNAL) and of spearheading the cooperative development of the Popular Savings and Credit sector (composed of over 400 *Cajas Populares*).⁵⁹ To this end, BANSEFI administers a one-off government investment subsidy to finance technical assistance to raise the sector’s governance, transparency, and management capacity to standards required for licensing by the CNBV. This subsidy is also used to finance the initial setup of a common network and infrastructure that could capture economies of scale, lowering costs for the *Caja* sector. Together with ongoing internal reforms, BANSEFI is thus becoming a *Caja de Cajas*, capable of offering centralized, efficient services to licensed *Cajas*. The BANSEFI-led program has made substantial progress in meeting its objectives, although there have been delays in the process of authorizing *Cajas*. SHF, FIRA, *Financiera Rural*, and BANSEFI define their mandates dynamically—they move on to new activities once the market they were promoting becomes self sustaining. For example, efforts are underway to sell BANSEFI to the *Cajas*; SHF will—as noted—cease second-tier lending as of 2009; and market-based lending by *Financiera Rural* is attracting banks back to the rural sector.

68. In the case of other DBs, mandates remain unclear and their initial *raison d’être* is losing relevance in the face of rapid financial market development; however, NAFIN has shown notable managerial improvements and instrument innovation. NAFIN, BANCOMEXT, and BANOBRAS are constrained by a static mandate in their Organic Laws. Their initial niches (financing of SMEs, exports, and sub-sovereigns, respectively) are being eroded: they can hardly sustain their traditional cost-of-funds advantage vis-à-vis the large, international commercial banks or the capital markets. Absent a legal reform, the degree of change in these DBs has largely been a function of management quality. NAFIN has made greater progress in repositioning itself and developing new instruments—for instance, it created an internet-based market for SME receivables that has become an example of innovative practices in the region. The loss of cost-of-funds advantage in export finance has led BANCOMEXT to gradually return to first-tier lending since 1998, away from its second-tier lending objective, although in the last two years efforts have been made to shift back to second-tier lending and establish a new business plan to operate as an “Eximbank.” While the advantages of keeping the export promotion function in BANCOMEXT (rather than in, say, the Ministry of Foreign Trade) can be debated, it is clear that such a function should be financed by the government’s budget (rather than via the current cross-subsidization within BANCOMEXT’s

⁵⁸ The nonpayment culture (moral hazard) fostered in the past by Banrural’s poor loan origination and collection practices had compelled FIRA to sometimes offer subsidized incentives and guarantees to induce banks to lend to agriculture. The current sound lending practices of *Financiera Rural* have substantially reduced moral hazard in agricultural lending and, as a result, the distortionary impact of subsidies in FIRA guarantees has become increasingly evident and should be corrected as a matter of priority.

⁵⁹ In its function of savings promotion, BANSEFI acts as a narrow bank—collecting small savings via its numerous branches (around 500) and investing then almost exclusively in Mexican Treasury securities. Although allowed by its law, BANSEFI has been careful not to use its branches to provide credit, as this would stifle the development of the *Cajas*, nullifying its principal mandate. The ambitious BANSEFI-led program of strengthening the *Cajas* sector is underpinned by the 2001 Law of Popular Savings and Credit.

activities). BANOBRAS is also losing its traditional competitive edge in cost of lending to sub-sovereigns. Moreover, as the most creditworthy state and local governments increasingly access private financial markets, BANOBRAS is being left with the weakest sub-sovereigns, which creates major challenges for it to meet its mandate while preserving its capital.⁶⁰

69. **The process of reform needs to be consolidated.** Going forward and in the shorter run, the reform of DBs should focus on avoiding reversals in the progress achieved so far, while further rationalizing their operations. There is a particular need to rationalize the numerous financial subsidies and guarantee programs through DBs and line ministries, as this multiplicity is leading to poor targeting, duplications, and “double-dipping” by beneficiaries. Annex 2 illustrates the potential for duplication by showing the number of SME support government subsidy and financing vehicles. Over the longer term, the DB system should be further consolidated, mandates reformed and made dynamic in some cases, and major improvements introduced in the way in which DBs performance is measured and rewarded. All of this would require substantial legal reform. Subject to a clear definition of objectives and mandate, a DA oriented towards SMEs should replace NAFIN and BANCOMEXT, while the latter’s export promotion functions should be transparently financed by the government’s budget. Similarly, as FIRA moves to full market pricing of all of its financial products, the case in favor of consolidating FIRA and *Financiera Rural* in a single, rural-oriented DA will grow stronger. The authorities should in the short run reform BANOBRAS’ instruments and operations, so to better match its mandate; in the longer run, consideration should be given to transforming BANOBRAS into a DA oriented toward capacity building in state and local governments. Finally, as the DB system evolves towards a DA model, there will be a growing need to reform the way in which DB performance is measured and evaluated using internationally accepted practices. The current criterion—of measuring performance in terms of the volume of loan disbursements—is bound to become increasingly less relevant. New criteria should focus on the impact of DA market-friendly interventions. As such interventions will increasingly involve nonlending instruments, their impact should be assessed in terms of their catalytic role in fostering a sustainable broadening of access to financial markets for underserved sectors.

Banking system stability

70. **The financial system has increased its resilience to adverse shocks, helped by good macroeconomic policies, sound oversight, and a favorable external environment.** Capital adequacy, provisioning, and profitability (as well as other financial soundness indicators) are strong and are considered to be sufficient to sustain severe shocks and adverse scenarios regarding commercial credit and market risks. The local currency bond and derivatives markets have developed considerably, helping to minimize currency mismatches in the system and allowing better management of market risks respectively. The strong growth in credit to the consumer segment (consumption and mortgages) creates the need to strengthen monitoring of the credit risk associated with this segment. There is also a need to continue ongoing efforts to monitor liquidity risks associated with interbank exposures and to continue to stress test for event risk.

⁶⁰ Although BANOBRAS does also resort to a form of intercept of states’ untied federal transfers as a means of lowering the risk of non-payment, as do commercial banks.

71. **In terms of the banking system’s safety net, significant progress was made in prompt corrective actions and new legislation on bank resolution was recently approved, but some challenges remain.** The prompt corrective regime is consonant with international practices. The recent approval of a new legal framework for bank resolution is a significant step forward, but aspects concerning the resolution of “too-big-to-fail” banks need close attention. The deposit insurance agency (IPAB – Institute for the Protection of Bank Savings) has substantially contributed to reestablishing financial system soundness, but it is still saddled with having to manage the debt related to the debtor support programs derived from the 1995 crisis. The servicing of this debt is preventing IPAB from being able to accumulate the deposit insurance fund and weakening its credibility. Regarding the framework for the resolution of large banks and the implementation of the recently approved Bank Resolution Law, it is advisable to: (i) amend the statutes of banks promptly to enable the so-called “conditioned capital restoration plan” and, (ii) develop suitable internal regulations and guidelines with regard to the determination of the size of the haircut to be applied to uninsured creditors. A legal reform of the banks’ bankruptcy framework is pending for cases where bank liquidations procedures are required. Additionally, it would be convenient to seek a suitable formula to alleviate the financial condition of IPAB, including the transferring of its debt to the federal government (which would require legal reform). The deposit insurance framework needs to be better aligned with international practices regarding coverage, base, and risk-based premiums. The BOM should formalize internal procedures for contingency planning and the lender-of-last-resort function. There is also the need to establish a framework and operational guidelines for the resolution of financial groups, taking into account the fact that most of the systemically important groups are foreign-owned. Contingency planning exercises to prepare for the possible failure of an individual institution, a systemically important financial group, or a systemic crisis is also recommended. A small number of high-level officials from the SHCP, BOM, CNBV, CNSF, CONSAR, and the IPAB should participate, from time to time, in detailed contingency planning scenarios (or “fire drills”) to more clearly solve coordination problems and identify shortcomings in the legal, regulatory, and procedural frameworks. These exercises are key to ensuring preparedness to better deal with difficult decisions in the event of an individual or systemic bank instability.

72. **There have been major improvements in the compliance with the Basel Core Principles for Effective Banking Supervision.** The legal and regulatory framework was strengthened, progress was made toward risk-based supervision, and the internal organization and professionalism of the National Banking and Securities Commission (CNBV) were improved. Notwithstanding these advancements, some issues still need to be resolved. The main pending issues that require further attention in banking supervision are the need to grant further autonomy to the CNBV and strengthen consolidated supervision. A reallocation of powers and responsibilities would be necessary for the Commission to have complete operational autonomy over the entire life cycle of regulated entities (licensing, regulation and supervision, and removal of the license). The Commissions’ budgets are dependent on, and merged with, the general government budgetary process administered by the SHCP. And the heads of the Commissions are appointed by the Executive Branch, via the Minister of Finance. The authorities consider the full political and budgetary autonomy (subject to adequate accountability) of the Commissions as a desirable and healthy objective. As regards the consolidated supervision of financial conglomerates, there remain important shortfalls to its full-fledged application. In particular, capital adequacy requirements are set only at the level of

individual entities, and not at a consolidated group level, which creates opportunities for arbitrage. Also, simultaneous inspections fall short of truly joint inspections and the figure of lead supervisor does not formally exist.⁶¹ To be sure, conglomerate risks are mitigated by the civil-code based Mexican legal framework which sets out with great precision the permissible activities for each type of financial entity. This creates segmentations that, while hindering synergies and financial innovation, limit conglomerate risks. However, as groups increasingly follow a group-wide strategy, the scope for such risks inevitably widens. Progress towards full-fledged consolidated supervision is hampered by a complex silo-based regulatory/supervisory architecture (Table 5). Moving towards full-fledged consolidated supervision requires legal reforms: giving the regulator the power to presume the existence of a group, setting capital requirements for the group in addition to its individual entities, strengthening the role and powers of the lead supervisor for the group who should be able to oversee the holding company *and* the individual entities, eliminating barriers to exchange information, and allowing for joint—rather than the simultaneous—inspection visits. Increased financial sector conglomeration can increase the risk of regulatory arbitrage. The authorities should move steadily to achieve a clearer delineation of responsibilities among all the sector supervisory agencies (the CNBV, the National Insurance and Securities Commission—CNSF and the Pension Fund Commission—CONSAR).

Table 5: Institutional Architecture for Financial Regulation and Supervision

	Ba nks a n d De p o s it Ta l i n g I n s t	Ex c h a n g e H o u s e s	M u t u a l F u n d s	I n s u r a n c e a n d S e c u r i t i e s	A F O R E S	N o n B a n k i n g I n s t
SHCP	□	□	□	□	□	□
BOM	□	□	□	□	□	-
CNBV	□	□	□	-	-	-
CNSF	-	-	-	□	-	-
CONSAR	-	-	-	-	□	-
Pro feco	-	-	-	-	-	□
C o n d u s e f	□	□	□	□	□	□ ¹¹

Capital Markets

73. **Mexican authorities have taken important steps to bolster the country’s capital markets in recent years.** On the demand side for financial instruments, institutional and retail investor base has been expanding, but still has great potential for further growth. This is a result of the introduction of private pension funds through 1997 reform, as well as the revamping of

⁶¹ The law specifies that a holding company will be supervised by the agency in charge of supervising the preponderant entity of the financial group, as determined by the SHCP. However, the holding company is characterized by a very simple balance sheet and performs no significant financial activity other than being the legal holder of the stock of its members. The agency in charge of supervising the holding company does not have lead responsibility in supervising the members of the financial conglomerate.

legislative framework for collective investment schemes in 2001, which led to an equally important mutual funds industry. To respond to this demand, efforts have been done to bolster the domestic equities, fixed income and derivatives markets.

74. **As part of the efforts to invigorate small equity markets and risk capital activity, an innovative Securities Market Law was approved by Congress in 2005.** The bill aims to improve corporate governance and transparency among listed companies, as well as making supervisory functions stronger, clearer and more agile. More importantly, the bill would create a new legal form for private enterprises, to facilitate private equity investment. The investment promotion limited company or *Sociedad Anónima Promotora de Inversión* (SAPI), has enhanced protection of minority shareholders rights, in exception to the General Law of Corporations, to allow shareholder agreements essential for private equity transactions. If a SAPI lists on the market, it would enjoy a three-year grace period to converge to normal public companies' standards. It is hoped that these legislative efforts will help address the structural issues of the Mexican equities market. Indeed, it remains relatively small and illiquid, and is not a major source of financing for most companies. Of the eight largest economies in the Americas, Mexico has the second smallest stock market, relative to GDP. The free float is limited and trading volumes are also low. While a surge in the index has raised market capitalization over the last few years, the equity market has been shrinking by other measures. Larger companies have increasingly preferred to list on international markets. Similarly, private equity activity remains limited, where estimates show that Mexico accounts for only around 0.1 percent of the overall risk capital investments globally and 10% of Latin America's total.

75. **The domestic debt market witnessed a remarkable development of the benchmark local currency yield curve and derivatives, based on federal debt instruments, while future challenges lie in attracting more private issuers.** In the last few years, the federal government followed a proactive debt management strategy, to reduce the vulnerability of its debt to interest rate and foreign exchange risks, by tapping increasingly in the local currency debt market. The local currency yield curve, non-existent in 2000, has lengthened to 20 years by 2005, establishing a benchmark that facilitates private and sub-sovereign issuance, but with a challenge to the government in terms of limiting possible crowding out effect to the same private sector. Another positive consequence is the growth of a vigorous derivatives exchange, which allows the diversification and mitigation of risks, especially for interest rates. As for private debt, the instrument *Certificado Bursátil*, introduced in 2001, provided issuers with significant flexibility, and has been increasingly used by firms and sub-sovereign entities for structured solutions such as asset-backed securities. Looking forward, new issuers may be attracted through two recent legal changes. Firstly, the Credit Institutions Law was amended to allow common law companies to issue debt on the capital markets, in order to finance their credit activities. Secondly, draft amendments to the Insurance and Warrant Companies Laws aim at promoting infrastructure bond origination, by introducing the Financial Insurance figure.

76. **Another important step would be to increase the range and liquidity of investment and risk management vehicles, while maintaining market integrity.** This includes firstly the need to continue to advance on regulations to attract new bond issuers such as de-regulated financial intermediaries (*Sofomes*), and usage of financial insurance for infrastructure bonds. Secondly, further foster the development of the risk capital industry, by coordinating public banks' activities in this area through the creation of a risk capital fund of funds. Thirdly, update

the regulation of over-the-counter derivatives activities, and regulate how other classes of institutional investors can use them. Finally, further foster secondary market activity in the bond market, for instance through stronger primary dealers quoting obligations.

77. **With regards to the mutual funds industry, the CNBV rules governing the sector limit the investment flexibility of mutual fund operators.** The CNBV rules list categories of mutual funds and require every fund to be included in a given category. The funds must adhere to standards for that category. For example, all funds in a class may be required to invest a minimum amount of its portfolio in certain types of assets or limit its annual portfolio turnover rate. These restrictions make it difficult for funds to significantly out- or under-perform others in the same category, limiting competition and inhibiting investor choice. When developing the secondary regulation for the New Securities Market Law, the CNBV should consider replacing this system of prudential-based regulation with a disclosure-based system that would enable fund managers to demonstrate their acumen and allow investors a full range of choice in investment strategy and the amount of investment risk they want to assume.

78. **The CNBV must begin to consider how to suitably monitor the OTC market for corporate securities, should the SAPI market develop as expected.** The new Securities Market Law created two new corporate entities (the SAPI and the SAPI B), to facilitate the ability of small- and medium-sized companies to access private venture capital and to transition into publicly listed companies. It is difficult to predict the results of this innovation, but if this approach is successful and a significant number of SAPI companies are created and successfully issue securities, an OTC market would develop for these securities. The noted new Securities Market Law authorizes the CNBV to develop secondary regulations pertaining to the SAPI and the SAPI B and to implement its authority to license limited function securities firms. Timely completion of these responsibilities is key to demonstrate the efficiency and effectiveness of the CNBV. Therefore, the CNBV should closely monitor the progress and begin to consider how an OTC market could be developed and regulated without disrupting the flexibility of the SAPI market.

Housing Finance⁶²

79. **The Federal Mortgage Society (SHF), a specialized development bank for housing, has led the reform effort that has produced major improvements in the housing finance market.** The market for mortgage-backed securities is emerging and an industry of private mortgage originators (Sofoles) has been established, although it is still largely funded by the SHF.

80. **INFONAVIT has widened its cooperation with the private sector and substantially improved its management, operations, and corporate governance, but it continues to suffer from an inherent conflict among its multiple mandates.** INFONAVIT is caught between its fiduciary duty as a defined-contribution pension fund, its first-tier mortgage lending function, and its social policy function as subsidy provider. This conflict has been mitigated, however, through modern management and operational improvements.⁶³ This creates a unique opportunity

⁶² See chapter 11 for a broader discussion of the housing sector in Mexico and chapter 4 on how housing subsidies are bundled with social protection programs.

⁶³ FOVISSSTE's operational improvements, though not trivial, pale in comparison to INFONAVIT's.

for an important reform—to formally decouple the workers’ contributions to the INFONAVIT-administered pension fund from the funding of INFONAVIT-originated mortgage lending.⁶⁴ In addition, INFONAVIT and FOVISSSTE are unduly restricted by law in the design of their mortgage products and continue to distort mortgage markets through interest rate subsidies in their housing loans to lower-income households. INFONAVIT charges wage inflation plus 9 percentage points on mortgage loans to individuals earning more than the equivalent of five minimum wages, translating to a nominal interest rate that is higher than some banks and a bit lower than Sofoles. However, the wage-indexation feature of these loans—which is mandated by law—is not market compatible as the political risk therein is impossible to measure and manage. For households earning less than the equivalent of four minimum wages, INFONAVIT charges wage inflation plus four percentage points (FOVISSSTE charges wage inflation plus four to six percentage points, depending on the income of the household), which results in a below-market rate, given the costs and risks involved in lending to this market segment. These interest rate subsidies reduce income for INFONAVIT and FOVISSSTE affiliates, but in a way that is not apparent, as the loss of income is not reported on the financial statements. It is recommended that these entities switch from interest rate subsidies to upfront subsidies that equal the present value of the foregone interest stream over the expected life of the mortgages. This would increase transparency in their financial statements and eliminate the relative price distortion. In addition, to level the playing field for mortgage originators the tax exemptions enjoyed by INFONAVIT and FOVISSSTE should be eliminated (or extended to all other lenders). Also, their laws should be reformed to free them from the obligation to make wage-indexed loans and allow them flexibility to design suitable market-friendly mortgage products. Finally, INFONAVIT should expand its efforts to use its influence constructively, for instance by encouraging states to reform property registries and title transfer and registration procedures. This is particularly important for the development of a housing finance market for used houses, which is at present virtually nonexistent.

81. Further steps should be taken toward establishing a centralized, integrated policy on housing finance subsidies for low-income households. An estimated 4.2 million households live in substandard conditions and are not served by formal mortgage institutions. About 20 percent of these households have a member that is affiliated with either INFONAVIT or FOVISSSTE, but these institutions’ subsidies are inequitable and do not reach the informal sector.⁶⁵ The streamlining or elimination of many subsidy programs and the creation of CONAFOVI to coordinate housing policy have been steps in the right direction, but they fall short of what is needed, not least because CONAFOVI lacks budgetary authority to manage a national system of subsidies and also lacks binding coordinating powers over INFONAVIT and FOVISSSTE. The Boards of INFONAVIT and FOVISSSTE should consider gradually moving towards upfront subsidies and market-based interest rates. Finally, legal reforms are needed to ensure that, in the future, INFONAVIT and FOVISSSTE target their housing credit lines only to low-income households.

⁶⁴ INFONAVIT is formally an Afore and the pension fund it administers is a Siefore. The housing loans made by INFONAVIT are treated as investments of the Siefore.

⁶⁵ In 2005, for instance, INFONAVIT satisfied only 3.4 percent of its low-income affiliates (employed individuals that earn two to four monthly minimum wages).

82. **The start of a mortgage-backed securities market is an important and fundamental achievement but some questions have been raised over what appears to be less-than-satisfactory due diligence reviews on securitized portfolios.** Since 2003, issues of 15 mortgage-backed securities for a total of MEX\$11.5 billion have come to market, involving mortgage loans initiated mainly by the larger Sofoles. While noteworthy, this represents only 0.7 percent of the balance of credits outstanding in the system at end-2005, and banks have not yet issued mortgage-backed securities, as they have no need for liquidity. Furthermore, given recent experience with the unsatisfactory work of auditors, credit-rating agencies and credit enhancers, the authorities should seek ways of encouraging the exercise of due diligence reviews as part of each transaction, which is all the more important in a nascent mortgage-backed securities market such as Mexico's.⁶⁶

83. **Plans should be put in place to ensure an orderly consolidation of the mortgage Sofoles when the SHF phases out its second-tier credit line for moderate and upper-income lending.** While a shakeup can be expected in the mortgage Sofol industry, it is crucial not to postpone the sunset of the SHF's credit line. Smaller institutions that lack adequate scale in their operations will have to change their business model, be acquired by a bank, or go out of business. After close to 10 years of transition, Sofoles that have not ceased to be dependent on the SHF credit line should be allowed to exit. Nonetheless, the shakeup might be softened if Congress approves the draft bill that proposes the full deregulation of nondeposit taking mortgage lenders that are not related to bank groups—as the implementation of such law would reduce costs and entry barriers. The materialization of the benefits of that law, however, will require effective market discipline, which in turn calls for suitable improvements in issuer disclosures.

Pensions and insurance

84. **The private pension industry is growing fast and supervision and regulation of the pensions and insurance industries meet international standards but the growth of the annuities industry has stalled.** In the defined-contribution pension area, policies aimed at lowering barriers to entry and facilitating migration to lower fee funds have made the market more contestable. Fees have decreased and, *ceteris paribus*, expected replacement rates have increased. A risk-based approach to supervising investment and operational risk has been introduced. Remaining issues include competition on returns and volatility of replacement rates. On the other hand, regulation and supervision of the insurance industry is of remarkably high quality. Nevertheless, in the area of disability insurance, recent legal reforms and practices by the Mexican Social Security Institute (IMSS) have resulted in disabled workers generally choosing benefits under the old system. As a result, the government faces a liability that was not foreseen under the 1997 pension reform, the development of the annuities industry has stalled, and the risk of insolvency among the annuity industry providers has increased.

85. **CONSAR may wish to consider some recommendations that do not require legal changes in support of its strategy to enhance competition on fees.** The ranking of Afores

⁶⁶ For instance, serious deficiencies were found in a mortgage pool where the SHF was asked to provide mortgage insurance. Thirty percent of the loans suffered from documentation problems. The auditor had reviewed only a small sample of loans. The rating agency did not review any loan files, nor did the institutions that were offering credit enhancements. No firm was called upon to play a specialized diligence role.

according to fees charged could be further simplified and individualized. The disclosure of rankings in a way that is relevant to each contributing worker can be generalized by requiring funds to include in individual pension account statements the peso amount that worker has paid in fees to his/her Afore during a given time period, as well as the peso amounts that he/she would have paid over the same period had he/she moved to other pension funds. The authorities should examine the possibility of transferring to PROCESAR functions currently performed by Afores that are subject to scale economies (e.g., back-office accounts management) in order to further reduce costs and fees. CONSAR should step up efforts to promote competition on net (risk-adjusted) returns. CONSAR's emphasis on promoting fee-based competition has so far been warranted because pension fund portfolios were until recently very similar: they were invested almost exclusively in government bonds and the dispersion in portfolio returns was insignificant. Pension funds are now allowed to invest, up to a limit, in equities and foreign assets and are also required to offer two funds, a relatively conservative one and a riskier one.⁶⁷ Moreover, quantitative investment limits were lifted in tandem with the introduction of a new risk-based supervision framework covering investment and operational risk.⁶⁸

86. As a result of these regulatory and supervisory innovations, the diversity in portfolio composition and returns has been increasing. These changed circumstances justify a shift in focus by CONSAR toward gradually promoting competition on net (ideally risk-adjusted) returns. Over the medium term, CONSAR should consider further relaxing the ceilings on pension fund investment in foreign assets and equities. As in other countries in the region—such as Chile and Colombia—the growth of pension funds in Mexico is outstripping the availability of suitable local assets. In addition, the current exposure of pension savings to the housing sector is high (in excess of 40 percent), if one considers INFONAVIT-administered pension funds and the exposure of the rest of the pension funds to debt issued by mortgage Sofoles. Replacement rates will increase as a result of lower fees and higher net returns but may still be insufficient to ensure adequate old-age incomes. The authorities should, therefore, explore additional policy actions to raise expected replacement rates for the generations after the current cohort (which has the option to choose pension benefits under the old pay-as-you-go system). In the longer term, consideration should be given to policies to address the tradeoff between increasing market discipline by facilitating switching, on the one hand, and maintaining stable replacement rates over time, on the other. In a pure DC system, individuals bear all the investment risks (market, credit, and inflation risks) during the accumulation phase and the annuitization risk (the risk of receiving a low stream of old-age income because the annuity is bought when interest rates are low) at the time of retirement. These two sets of risks do not necessarily offset each other, resulting in volatile replacement rates over time—i.e., different replacement rates for individuals

⁶⁷ The riskier fund is allowed to invest up to 15 percent of assets in equities, and up to 20 percent of the portfolio in qualified foreign assets, and is the default option for individuals younger than 56 years of age. The more conservative fund is allowed to invest up to 20 percent of the portfolio in qualified foreign assets.

⁶⁸ The operational risk supervision framework is of very recent vintage and, as a result, appears to be superimposed on the old compliance regulation framework—a feature that has to be removed to lower regulatory compliance costs and, hence, barriers to entry. The risk-based supervision approach to pension fund investment is more mature—it supplemented the regulations based on quantitative limits in place since the beginning of the system. The risk-based approach gives Afores flexibility to choose investment strategies while controlling market-risk exposure through an absolute limit on the Value-at-Risk (VaR) and curbing credit-risk exposure through the use of credit rating limits. This risk-based approach is consistent with the mutual fund nature of DC pension systems without guarantees and with best practices in developed countries.

that, over their working life, have similar earnings and make a similar effort in saving for retirement. This problem may be exacerbated by policies that promote competition through transparent disclosure of net returns and freedom to switch to higher net return funds. Such competition would tend to accentuate the focus on short-term returns, shrinking the investment horizons of pension fund administrators. In other words, there may be a policy trade-off, inherent to all DC pension schemes, between promoting competition and maintaining stable replacement rates.

87. **The pension and medical insurance components of the ISSSTE—the social security institute for public sector employees—have deficits and are in need of reform.**⁶⁹ During 1975 - 2000 the performance indicators of the institution have deteriorated rapidly.⁷⁰ In addition to overall relative generosity, the ISSSTE has serious pension benefit design problems that promote early retirement and impair portability. As a result, the deficit of ISSSTE for its pension component increased to approximately MXN 37 billions for 2006. On the other hand, the medical fund of the institution also has a deficit that is projected to double every 5 years (in current pesos) and is largely due to the 1992 decision not to collect premiums from retirees and to average doubling expenditure every 10 years. During the last administration a reform package that proposed changes to the pension⁷¹ and medical⁷² components was submitted to parliament.

88. **The windfall stemming from the high prices of oil provides Mexico with an important window for reforming the scheme and absorbing the fiscal impact associated with the implicit debt to current workers.** The reform of ISSSTE could be pursued at this stage. At the same time, there appears to be at least three key issues that need to be analyzed as part of this process:

- (i) *Pension financing mechanism.* The reform package of the pension component foresees only a defined contribution pension fund for new entrants. Defined contribution schemes provide direct risk sharing among generations while defined benefit schemes may provide risk sharing within generations. Since civil servants will always be exposed to both different and uncorrelated types of market risk (risk in earnings versus risk in returns on capital markets) a partial shift to an actuarially fair, fully funded pension scheme appears justified. However, a complete replacement of a PAYGO scheme with an actuarially fair, fully funded, scheme cannot be justified on these grounds. It is possible to design hybrid schemes (combining the good risk sharing properties of DB and DC schemes) that will have the same fiscal impact of the current proposed reform. A complete replacement of a PAYGO scheme with an

⁶⁹ As noted earlier, this chapter was written in November 2006. ISSSTE reform was approved by Congress in March 2007.

⁷⁰ The system dependency ratio decreased from 20 to 5.2, the average retirement age decreased from 62 to 55 and life expectancy increased from 64 to 75.

⁷¹ The reform foresees the creation of a public AFORE (pension fund administrator) supervised by the Mexican Commission for the Retirement Savings Systems (CONSAR) to manage individual accounts of new entrants and current workers who opt to participate in the new afore. At the same time ISSSTE would be subject to a gradual parametric reform for workers who do not opt to join the new AFORE. The implicit pension debt related to current workers who opt to join the new public afore would be formalized through the issue of recognition bonds.

⁷² Proposed reforms include increasing contributions from the government to improve the financial viability of the scheme, building of new medical centers, improving the actuarial balance of the disability insurance, and increasing medical personnel but it is not clear whether a rationalization of the benefits is foreseen.

AFORE can only be justified from the political economy point of view when a high political risk exists of benefit manipulations that will put the scheme in actuarial imbalance.

(ii) *Governance of PENSIONISSTE and public pension fund management.* The reform package of the pension component foresees PENSIONISSTE investment policy focusing on social/developmental mandates such as housing, infrastructure (including energy). If political risk exists of benefit manipulation in a DB scheme, it can be assumed that the same political risk would affect assets management. The international, and more specifically, regional experience, shows that public pension funds in most countries are used, often in a non transparent way, for developmental and social objectives that are not necessarily consistent with the provision of adequate, affordable and sustainable retirement income to plan members. Reserves have been used to subsidize housing, state enterprises, and various types of economically targeted investments. The state ownership of PENSIONISSTE could unduly expose asset management to political intervention unless a strong governance mechanism, including outsourcing of asset management to private sector asset management through public competitions, is introduced; and...

(iii) *Impact on AFORE competition.* It is not clear how the public ownership of PENSIONISSTE will affect the competition in the AFORES' market. On the one hand, state owned pension funds tend not to act as with profit institutions. The presence of a low fee alternative in the AFORE's market could, in principle, prompt other AFPRES to lower their fees. However, it is often the case that state owned pension funds (the AFP Republica in Uruguay is one case) unduly subsidize their activities often at a loss. This reduces the contestability of the market by creating a barrier to entry. Such reduction in market competition is often associated with poor services to contributors, including asset management.

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Annex 1: Key Milestones in the Reform of the Mexican Financial Sector (2001-2006)

- ***Credit Institutions Law and Financial Groups Law:*** aimed at channeling a greater proportion of national savings through the financial system; fostering long-term savings; strengthening banking regulation and supervision; promoting transparency and competitiveness; fostering new financial products and services; strengthening the credit institutions' corporate governance; and broadening the range of services offered.
- ***Amendments to the Rules of Capitalization Requirements for Multiple Banking Institutions and Development Banks:*** aimed at advancing the convergence between banking regulation and international standards.
- ***Amendments to the Miscellany on Credit Collateral:*** aimed at promoting bank lending by reducing transaction costs; widening the options to secure credit transactions; granting greater judicial certainty to creditors and borrowers; and promoting an orderly and sustainable recovery of defaulted bank loans.
- ***Credit Information Institutions Law:*** aimed at regulating the establishment and operation of credit information societies; and ensuring proper access to credit information, while respecting valid privacy concerns.
- ***Credit Institutions Law:*** established a prompt corrective regime consistent with international best practices.
- ***Law of Transparency and Ordering of Financial Services:*** regulates commission fees, interbanking fees and other aspects related with the provision of financial services; prohibits discriminatory practices between credit institutions and between users; establishes transparency requirements in contracts and check account balances, credit and debit cards; foresees transparency mechanisms to allow clients of credit institutions to know the carried out transactions and their fees; and establishes sanctions for breaches of the law.
- ***Organic Law of the Federal Mortgage Association:*** aimed at increasing the housing supply for wage earners and other workers; promoting the construction and acquisition of housing, preferably low income; and fostering mortgage securitization and increasing credit supply for housing construction and acquisition.
- ***Popular Savings and Credit Law and Organic Law of the Bank of National Savings and Financial Services:*** strengthened the institutional and regulatory framework of popular savings and credit activities, increasing access of low-income sectors and small enterprises to the formal financial sector; established the conditions to foster the development of a popular savings and credit system; created the Bank of National Savings and Financial Services, which offers training and consulting services to popular savings and credit entities, and promotes cost reduction through centralized provision of services subject to economies of scale.
- ***Organic Law of the Financiera Rural:*** aimed at supporting the development of agriculture, forestry, fishing and other rural activities. The *New Financiera Rural* replaced the former Rural Credit Bank (BANRURAL). *Financiera Rural* does not take deposits from or issue debt to the public, it is financed by the government through the budget with all appropriations, allocations, financing, and guarantees properly and explicitly accounted for in the budget and approved by Congress.
- ***Amendments to the Securities Market Law (2001):*** aimed at promoting the development of the securities market by making it more transparent, efficient, and accessible. The 2001 amendments enhanced information, disclosure, minority stockholders rights; improved corporate governance practices; introduced a new versatile instrument (*certificado bursatil*), a security note that can be issued by private and public debtors; incorporated the central counterparty (establishing lender and borrower rights and obligations in securities transactions) to the market structure, reducing systemic risk in the securities market; introduced a consolidated regime applicable to public companies; redefined the functions and responsibilities within the corporate structure; introduced audit and corporate governance committees with independent board members; included clear mandates and fiduciary duties for board members, managers and external auditors, and further improved minority shareholders rights. It also promoted access to broad securities markets to small- and medium-size

firms through new corporate vehicles.

- ***Mutual Fund Law***: aimed at facilitating the access to the stock and debt market of a wider range of investors. It improved mutual funds corporate governance practices; allowed for a mutual fund to change from one mutual fund operator to another with the aim of promoting competition and reducing investment manipulations not associated to maximizing the investors' returns; allowed for a more flexible investment regime; prohibited banks and investment banks to act as mutual fund operators but allowed them to carry out this function by establishing a subsidiary.
- ***Amendments to the Law of Mutual Insurance Institutions and Associations and the Federal Sureties Institutions Law***: aimed at strengthening the institutional and regulatory framework for the activities of insurance institutions; increasing the efficiency of insurance institutions' operations; consolidating the insurance sector's legal framework with that in place for the financial sector; and developing best corporate practices among intermediaries. Recently, a new amendment introduced the Mortgage Credit Insurance (*Seguros de Crédito a la Vivienda*) and Financial Warranty Insurance (*Seguros de Garantía Financiera*).
- ***Modernization of the legal framework for Sofoles, leasing, and factoring companies***: aimed at enhancing competition in the credit market, reducing administrative costs, and fostering the legal framework applying to financial leasing, factoring and credit. This reform included the liberalization of leasing and factoring activities. Any company will be able to carry out such activities, and there will be no need for authorization nor supervision from the financial authorities.
- ***Amendments to the Income Tax Law***: established a fiscal regime that allows for the development of two investment vehicles, the FIBRAS (*Fideicomiso de Infraestructura y Bienes Raíces*), a vehicle similar to the Real Estate Investment Trusts in the United States, and private equity vehicles.
- ***Amendments and Additions to the Retirement Savings System Law***: opened the possibility for more workers to access the benefits of the New Pension System, including workers not registered in the social security institute (workers affiliated with the social security system for public sector employees, state and municipal governments, and public universities or working independently); allowed complementary contributions for retirement for all workers; and allowed investing—up to a limit of 20 percent—in foreign securities.
- ***Payment Systems Reforms***: revamped the legal framework by enacting a Payment Systems Law in order to ensure payment finality and improve the execution of collateral and the oversight powers of the BOM; eliminated remaining credit risks in the large value payment systems, in line with the BIS CPSIPS; established a requirement for any overdraft in the large-value electronic payments system to be settled on the same day by using bilateral credit lines provided by other banks; improved the quality of collateral associated with BOM's credit; and consolidated the intraday credit into one payment system (from the previous three systems).
- ***New Securities Market Law (2005)***: established a regulatory framework in line with international standards covering several aspects of the market, such as disclosure of information to investors, minority rights, and sound corporate governance. This framework supports the access of mid-sized corporations into the securities market and consolidates the rules applicable to issuers, in order to improve their organization and operations, through modern corporate structures and revamped liabilities. The new law updates the legal framework applicable to securities firms and those financial entities that participate in this sector, such as securities depository entities and central counterparties, among others. The law also seeks to update the regime of criminal offences and redefine the powers of financial authorities in order to make their functioning more efficient. The CNBV is enabled to inform the general public on the existence of inquiries and sanctions imposed.

Source: "Institution Building in the Financial Sector," G20, 2005; and FSAP Update team discussions with the Mexican authorities.

Annex 2: Subsidy and Financing Programs to Enterprising, Productive Projects, Small Business, as well as Intermediary of the Social Banking.

Agency or Entity	Program	Objectives
Ministry of Economy	Fund to Support the Micro, Small and Medium Enterprise (PYME Fund)	To give temporary support to programs and projects of micro, small and medium enterprise. Promote the access to finance on micro, small and medium enterprise.
Ministry of Economy	National Financing Program of the Micro-entrepreneurs.	To give subsidy and financing for the establishment and consolidation for the sector of national micro financing.
The Secretariat of Economy (Seconomía)	National Fund to Support Enterprise in Solidarity (FONAES)	Offering subsidies to prompt the productive work and business of the rural population, peasants and indigenous and entrepreneurs of low income of the rural areas, by means of support to the formation of productive capital, business skills and the build up of financial intermediaries.
The Secretariat of Economy (Seconomía)	Fund for Micro Financing of Rural Women (FOMMUR)	Channeling micro credits to rural women, with business vocation, willing to prompt productive and profitable projects with associative capacity.
SRA	Women Program in the Agrarian Sector. (PROMUSAG)	Offering subsidies to productive projects to women of the agrarian sector.
SRA	Fund for the Support to Productive Projects (FAPPA).	Offering subsidies and support to productive projects of the agrarian subjects and group of peasants that inhabit in agrarian areas.
Sagarpa	Support Program to Access the Rural Financial System (PAASFJR)	Support the producers of the rural sector to access the credit resources to help them develop his activities and contribute to the development of an efficient rural system.
Sagarpa	Support Program to the Rural Investment Projects (PAPIR)	Grant subsidies to promote the investment in capital good of the rural population to execute productive projects of proper technology application, productive re-conversion, collection, conditioning and transformation.

Agency or Entity	Program	Objectives
Sagarpa	Regional Projects for Technical Assistance to the Rural Micro-financing (PATMIR)	Offering technical assistance and small subsidies to non-bank financial intermediaries to facilitate access to financial services to the inhabitants of marginalized rural regions.
Sagarpa	Rural Development Programs Sub-program of Development (PRODESCA)	Developing the capacities of the rural population eligible to identify areas of opportunities, formulate, execute and consolidate projects that can improve their productive, commercial, organizational and business processes.
Sagarpa	Strengthening Sub-programs of Rural Businesses and Organizations (PROFEMOR)	Incorporating to the Unit of Rural Production (UPR) and priority groups in an organized way to the appropriation of the added value in both senses of the productive academy, promoting synergies among the organizations, economic networks and the rural financial services, such as fortifying the processes of participation and self-management, that enable them to have a greater power of communication and positioning of their enterprises and organization.
Sagarpa	Support Programs to the Social Organizations of Agribusiness and Fishing grounds (PROSAP)	Offering subsidies to the social and economic organizations of the rural sector to formulate and execute productive projects.
STPS	Productive Investment Projects (PIP)	Offering subsidies by means of delivery of machinery, equipment and tools to unemployed people and sub-employed interested in developing a productive project.
FIRA	Credit Program by Administration. (PROCREA)	Facilitating the formal financing of businessmen with a credit requirement of small amount, through a private intermediary called Agent PROCREA.
FIRA	Comprehensive Technical Service (SATI)	Support credit operations to producers with an annual net income of 3,000 times lower

Agency or Entity	Program	Objectives
		than the minimum daily salary in the area, by means of professional advice in productive, administrative, financial and organizational aspects.
FIRA	System of Stimuli to the Bank (SIEBAN)	Compensating the commercial banking by giving access to formal credit to low income producers in need of small credits.
FIRA	System of Stimulus to the Credit Unions (SIESUC)	Consolidate and increase the operations between the Credit Unions, the Bank and the FIRA.
FIRA	Service of Guarantees	Facilitating the access of producers and businessmen to the credit of the Private Bank complementing the own guarantee of the business.
FINRURAL	<i>Entidades Dispersoras</i> Program Phase I	To give credits to <i>entidades dispersoras</i> of credit and/or financial intermediaries directed to the rural sector that were not contemplated in the LOFR, nor regulated by the CNBV
FINRURAL	Program to reduce transaction costs.	Offering subsidies to the intermediaries to reduce the transaction cost of their clients.
FINRURAL	Comprehensive Program of Formation, Qualification and Consulting for Producers and Rural Intermediaries.	Offering subsidies to the development of qualifications and consulting for producers and rural intermediaries.
NAFIN	Comprehensive Program for the Micro-Enterprise.	Providing financing, qualification and technical assistance to the smallest economic units of the country.
BANSEFI	Consolidation of the Institutions of the Saving and Popular Credit Sector.	Offering subsidy to the technical assistance to the society of saving and popular credit (SACPS) and to the personnel of the federations that group SACPS interested in receiving the supports to complying with the legal framework.
BANSEFI	Qualification for the Personnel of Federations and SACP's.	Subsides to form human resources required by the SACP's and federations to comply with the Law and the regulations.
BANSEFI	Strengthening Program to the Saving and Popular Credit and Rural Microfinance. Technological	To design, establish and operate an information system to support the saving and popular credit intermediaries in the generation and information dissemination, for own use and to comply with the

Agency or Entity	Program	Objectives
	Component.	regulation.
BANSEFI	FOMIN. Component of Remittances of the Red of the People (La Red de la Gente)	To develop the connectivity between the systems in SACP's and BANSEFI, with the purpose to operate The Network of the People (<i>La Red de la Gente</i>), conformed by financial intermediaries that offer a variety of services with high quality and reduce costs to the societies and the end users, with national cover.
Sedesol	Program of Productive Options: (a) Support to the Word, (b) Productive Credit for Women, (c) Granting support and enterprise formation, (d) Saving with you, (e) Productive Integration, (f) Local Development Agents	Offering support to the poor population from a strategy that could generate productive options, contribute to the consolidation of producers, favoring the formation of agencies of local development, and contribute to the formation of a system of social financing.
Sedesol	Civic Initiative 3x1	Supporting the civil initiatives to make specific projects that involve improving de quality of life of 10 inhabitants through assembly of resource of the federation, states, municipalities of the same group of citizens organized, mainly the ones living abroad.
Nacional Comisión on the Arid Zones (CONAZA)	Program of Scientific Entailment and Transference of Technology	Offering subsidies for investigation projects to promote sustainable development and the improvement of the quality of the rural inhabitants living in extreme poverty in the arid and semi- arid zones of the country.
National Fund for the Promotion of the Local Crafts (FONART)	Granting of credit	Offering credits for the support of the cycle of production of the popular traditional local crafts

Fuente: *Oficina de Políticas Públicas, Encuesta a dependencias y entidades del Gobierno Federal sobre Transferencias, Financiamientos y Apoyos a Emprendedores, Proyectos Productivos, Micronegocios e intermediarios Financieros, Presidencia de la Republica, México, Marzo de 2004*

Chapter 3: MEXICO'S REGULATION, COMPETITION AND INVESTMENT CLIMATE: SOME PROGRESS BUT KEY CHALLENGES AHEAD

Jose Luis Guasch and Keta Ruiz

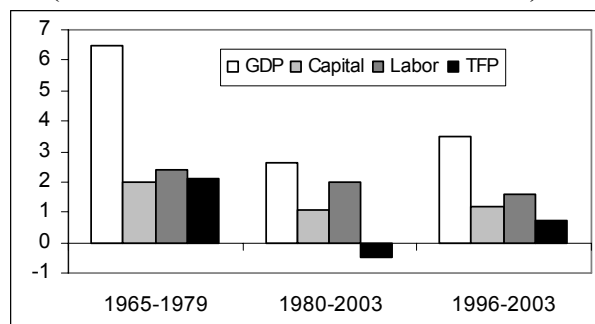
Growth and productivity improvements in Mexico have been modest in recent years and overall competitiveness has been weak—underperforming—relative to per capita income and not improving, according to the usual rankings. Mexico's competition environment, regulatory framework and investment climate are major priority reform areas to increase Mexico's competitiveness. This policy note highlights main constraints in those areas and identifies key high impact interventions to maximize Mexico's efficiency potential for generating jobs and secure sustained growth. If major improvements are made, Mexico could quickly increase its income per capita, as a number of countries have recently done. This note draws on a series of focused analytical pieces done by the World Bank and others, including a recent analysis on competitiveness.⁷³

A. KEY COMPETITIVENESS CHALLENGES

1. **Growth and productivity improvements in Mexico have been modest in recent years.** Over the last decade, Mexico has benefited from a relatively stable economy, and more recently from favorable oil prices and has avoided the pattern of financial crises that have plagued many of its past political cycles, thanks in large part to prudent fiscal and monetary policies. Despite this stability, structural economic constraints have held back growth and therefore poverty reduction. Growth rates have been particularly low over the last decade when compared with similar income countries in East Asia. While real GDP per capita in Mexico only grew at an annual rate of 1.2 percent between 1994 and 2004, it grew at 7.7 percent in China, and at 5.9 percent on average in the East Asia and Pacific region. Productivity growth rates have also been lackluster. The share of growth attributable to total factor productivity was negative on average between 1980 and 2003, although there has been a slight increase in recent years (Figure).

⁷³ World Bank (2006a).

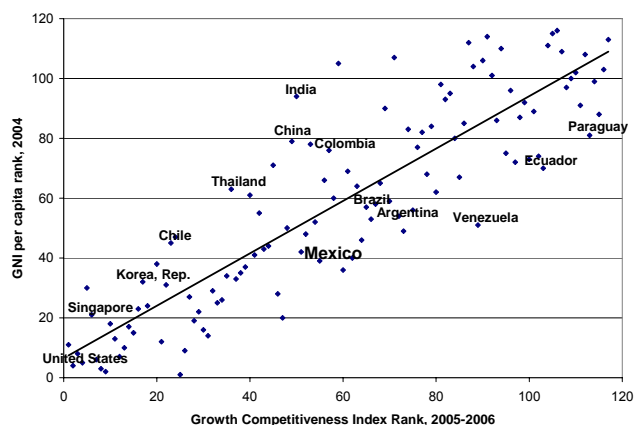
Figure 1: GDP Growth in Mexico and its Components in %:Growth Accounting, 1960-2003 (Contributions to GDP Growth in Percent)



Note: Numbers are for real GDP growth (not GDP per capita).

Source: Faal (2005).

Figure 2 : Competitiveness versus GNI per Capita Rankings



Note: Lower-ranking numbers are better.

Source: World Economic Forum (2005) and World Bank, World Development Indicators.

2. **Mexico’s competitiveness is weak—underperforming—relative to per capita income, and although small recent gains, it still means lost opportunities for poverty reduction.**⁷⁴ The World Economic Forum’s 2006-2007 *Global Competitiveness Report* gives Mexico a rank of 58 out of 125 countries, up one spot from last year.⁷⁵ In comparison, Mexico’s GNI per capita rank within that same sample of countries is 39. While this gap between income and competitiveness rankings is not atypical for Latin America, it indicates that Mexico is falling well short of its potential. In contrast, Chile, India, China, and other East Asian economies enjoy competitiveness rankings that exceed their income placing (Figure). Nearly all the countries that have had long term success in reducing poverty have done so with higher rates of economic growth.⁷⁶ This association is also true for Mexico, where poverty reduction has tracked growth in GDP per capita over the last decade. Nonetheless, after experiencing robust GDP per capita growth following the 1994 Tequila Crisis, income levels have been nearly stagnant since 2000.

3. **Its competition environment, regulatory framework and investment climate are major priority areas to increase Mexico’s competitiveness.** The IMCO (2005) study develops a model to assess Mexico’s competitiveness and establishes priorities among themes in terms of impact on investment (gross capital formation) per worker.⁷⁷ From that model, “point elasticities” are estimated, giving the impact on investment per worker of a ten percent improvement in the respective independent variables (Table 1). As shown, the high-impact themes are the competition environment, taxes and its regulations, regulatory and investment climate, education and innovation, trade facilitation, transport and logistics, corruption, finance and energy. These impact

⁷⁴ Competitiveness is broadly defined as the “collection of factors, policies and institutions which determine the level of productivity of a country and that, therefore, determine the level of prosperity that can be attained by an economy.” World Economic Forum (2005), p.xiii.

⁷⁵ This ranking is for the Growth Competitiveness Index.

⁷⁶ World Bank (2004a).

⁷⁷ IMCO (2005).

estimates provide guidelines for prioritization of interventions in order to increase Mexico’s competitiveness. The identification of those themes is also supported by two other relatively comprehensive reports: a **Competitiveness Focus Groups** report⁷⁸ and the **World Economic Forum’s (WEF) Global Competitiveness Report 2005-2006**. Finally, the identified priority areas are validated by analyzing competitiveness constraints through a **growth diagnostic framework** (Hausmann, Rodrik, and Velasco, 2004).

Table 1: Constraints to Competitiveness⁷⁹

Subject areas	Impact on investment per worker of a 10 percent improvement in the variables behind each subject area
1) Competition environment	7.5 %
2) Taxes and its regulations	7.1 %
3) Regulatory and investment climate	6.8 %
4) Education	6.0 %
5) Trade facilitation and transport / logistics	5.8 %
6) Corruption	4.7 %
7) Innovation	3.8 %
8) Finance	3.6 %
9) Energy	2.7 %
10) Labor market	1.9 %
11) Macroeconomic environment	1.0 %

Note: The percentages are point “elasticities” which reflect the impact on investment per worker of a 10 percent improvement in the variables behind each subject area.

Source: World Bank extrapolation of IMCO subcomponent elasticities.

B. HOW COULD MEXICO MAXIMIZE ITS EFFICIENCY POTENTIAL?

4. **To compete in what the World Economic Forum (2005) calls the “efficiency-driven stage” of development, Mexico needs to develop more efficient production processes, increase productivity, move up the value chain and reduce costs throughout the economy.⁸⁰ To reduce costs and improve productivity, Mexico should focus on improving the competition, regulatory and investment environment, to facilitate effective**

⁷⁸ World Bank (2003).

⁷⁹ It should be noted that the impact numbers in Table 1 are for single effects or isolated improvements in each category. A broad package of reforms across most of the high-impact categories could have a positive bundling effect. In other words, the interaction between the individual variables should create an overall impact that is substantially larger than the sum of the individual improvements.

⁸⁰ The World Economic Forum (2005) classifies Mexico as being in the efficiency-driven stage along with Argentina, Brazil, and Chile, for example. At the efficiency-driven stage, firms increase productivity by adopting efficient production practices. Among the countries in the first stage—the “factor-driven stage”—where firms compete on price by taking advantage of cheap capital, labor, and energy factors, are China, India, and Bolivia. At the innovation-driven stage, firms need to produce innovative products using sophisticated production methods, e.g., Finland, Germany, and Japan.

competition among firms.⁸¹ These are all high impact areas, as shown in Table 1. Mexican authorities are supporting improvements in most of these areas, but further progress is necessary. Especially key are the non-traded sectors of the economy, particularly energy, telecommunications, transport and financial services, which because of its non-traded nature and its importance as inputs to most products and services, are priority areas discussed in the following subsections.⁸²

5. Greater competition leads to efficiency gains. Competition, and the benefits it brings; lower prices, greater variety and product mix and the development of new products; is crucial for increasing welfare, poverty reduction and the overall wellbeing of a society. Policies that enhance competition are expected to bring not only static improvements in efficiency, especially in “disciplining” monopolies, but also dynamic improvements in efficiency, through improvements in productivity and innovation. Recent empirical research indicates that regulation that lowers entry barriers and state control increases productivity and technological innovation, stimulates business investment, and increases long-run employment rates.⁸³ Therefore, reforms to enhance competition could have significant effects on growth. A study of the impact of pro-competitive regulatory reform in several industries in the United States found that annual welfare gains in the part of GDP affected by reform were more than 7 percent, with 90 percent of the benefits flowing to consumers.⁸⁴ Increasing competitive pressure can increase the probability of firm innovation by more than 50 percent.⁸⁵

6. Along with being a pioneer in Latin America in private sector participation in the economy starting in the late 1980s,⁸⁶ Mexico was a pioneer on establishing regulatory regimes. In the 1990s, Mexico undertook major reforms to establish the regulatory institutional framework to protect consumers against the abuse of monopoly power while ensuring the protection of investors for efficient operation and to attract and maintain enough investment in the regulated sectors. The Federal Competition Commission (CFC) and the sectoral regulators were created covering the whole spectrum of aspects and sectors that because of its nature needed regulatory systems in place (see Box 1). But the regulatory and competition structures and framework put in place, were flawed and as a result have not been able to stop anti-competitive behavior and provide for healthy expansion and operation of the sectors as noted below. *In particular four key sectors with strong economy wide effects--energy, telecom, transport and financial-- are significantly underperforming-when compared with their equivalent elsewhere- with high prices, tepid expansion, and quality concerns.*

⁸¹ This note focuses on the top three factors, although, the topic of taxes is not a subject analyzed in this report since it is the subject of the Mexico Country Economic Memorandum: Challenges and Prospects for Tax Reform.

⁸² The topic of finance, although suffering from competition constraints is not discussed here since it is addressed in the chapter on Public and Private Finance.

⁸³ Nicoletti and Scarpetta (2003) and Nicoletti and Scarpetta (2004).

⁸⁴ OECD (2002).

⁸⁵ World Bank (2004).

⁸⁶ Starting in the late 1980s Mexico sold off state-owned enterprises, privatized banks, and started major initiatives in infrastructure, including a program of private sector participation in toll roads and in 1989 became the second country in Latin America to privatize its telecommunications sector, with the privatization of the then state-owned Telmex.

Box 1: Mexico Pioneers Competition and Regulatory Frameworks in Latin America

Antitrust and Consumer Protection

- Although Article 28 of the Mexican Constitution of 1917 prohibits monopolies and monopolistic practices, competition policies and their implementation are relatively new in Mexico. It was only in 1993, following the important wave of reform of the mid 1980s, that the Federal Law of Economic Competition (*Ley Federal de Competencia Económica*) was enacted and the Federal Competition Commission (*Comisión Federal de Competencia*, CFC) was created. Regulations to the law, that defined the actual procedures that the CFC would use to implement the law, were later published in 1998.
- Competition and consumer protection is also enforced through the Federal Consumer Protection Law (LFPC) by the Federal Prosecutor for Consumers (PROFECO). The objective of the Consumer Protection Law is to promote and protect consumer rights and procure equity and legal security in relationships between suppliers and consumers. PROFECO, created in 1975, is a Federal governmental decentralized public agency, with legal personality and own endowment. Article 28 of the Constitution, the LFPC, its Regulatory and Organic Statutes, the Federal Law of Metrology and Standardization and other regulations constitute its normative framework.

Sectoral Regulation

- The Federal Telecommunications Commission (COFETEL), which is a decentralized agency (órgano deconcentrado) of the Secretariat of Communications and Transportation, to regulate telecommunications. In 1995, a new Federal Telecommunications Law was enacted and COFETEL was established in 1996.
- The Energy Regulatory Commission (CRE), a decentralized agency of the Secretariat of Energy, to regulate electricity and gas, created as a consultative agency in 1993 but modified in 1996 to provide CRE with a wider scope to regulate electricity and gas.
- The National Water Commission (a decentralized agency of the Secretariat of the Environment and Natural Resources, SEMARNAT) to administer and preserve national waters, to contract, to award concessions or to decentralize the provision of water supply and sewerage services that are of their jurisdiction, or as agreed with the State Governments and municipalities, or with third parties; regulation of water quality, but water tariff regulation is practically non-existent.
- The National Insurance and Bonding Commission to regulate insurance and bonds.
- The National Retirement Fund System Commission that regulates pension funds.
- The Federal Regulatory Improvement Commission (COFEMER), a decentralized agency of the Secretariat of Economy, to guarantee transparency in the development and application of regulations, as well as ensure that the benefits of regulations outweigh their costs to society.
- The transportation sector is regulated directly by the Secretariat of Communications and Transportation.
- The Secretariat of Finance and Public Credit, the National Banking and Securities Commission, and the Mexican central bank regulate the financial and banking sector.

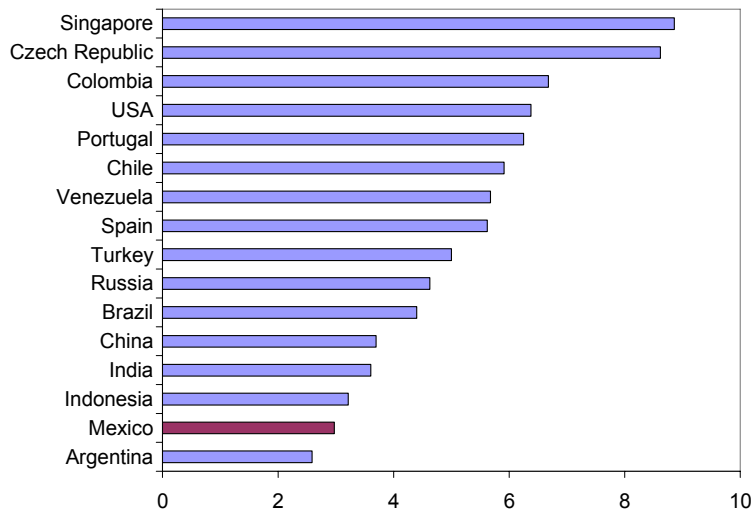
7. **Studies show overall competition deficiencies in Mexico.** For instance, according to a recent governance survey, the two largest market obstacles to business development identified by firms in Mexico are monopolies, private or public.⁸⁷ The Global Competition Review 2003 ranking of competition regimes in 25 countries places Mexico near the bottom with a score of 2.25, in a rating from 0-5, only above Greece (2.0) and Argentina (1.5).⁸⁸

⁸⁷ *Centro de Estudios Económicos del Sector Privado (CEESP) (2005).*

⁸⁸ *Global Competition Review (2003).*

8. **Performance of regulated sectors, such as energy and telecommunications, has also been inadequate.** Both energy and non-energy businesses' investment decisions are based on expectations about energy prices and service quality levels. And unfortunately, expectations of Mexican businesspeople are quite low. Business opinion surveys give Mexico the lowest rank of any OECD country in terms of energy infrastructure adequacy and efficiency (Figure 3). Natural gas, electricity, and fuel oil prices have seen dramatic increases in recent years and are among the highest in the world. High electricity costs are compounded by fluctuations in frequency and voltage, resulting in effective costs that are 10-60 percent higher than those of U.S. counterparts. When annual interruptions are compared with Latin American privatized distribution companies, the performance of Mexico's National Electric Company (CFE) is weak. Furthermore, electricity subsidies are highly regressive and amount to about 1.1 percent of GDP. The critical issues in the energy sector are: investments levels to support expected economic growth, the efficiency of the state-owned firms providing the service, the level of prices, the subsidy structure, and regulatory and governance structure. All need to be addressed to ensure Mexico's required increase in competitiveness.

Figure 3: Energy Infrastructure Adequacy and Efficiency (2005)



Note: Scores (between 0 and 10) are based on business survey responses to the question: "Is the energy infrastructure adequate and efficient?" The highest value indicates the most positive perception.

Source: IMD World Competitiveness Online.

9. **Likewise, Mexico lags on Information and Communications Technology (ICT) and Telecommunications, and more competition is needed.** Despite impressive ICT growth during the 1990s, Mexican investment in ICT lags behind other Latin American and OECD countries. Mexico's level of ICT expenditure as a share of the overall economy (3.1 percent) is significantly below OECD countries such as Japan (7.4 percent), US (8.8 percent) and New Zealand (10 percent). It is also nearly half that of Chile and Brazil's rates of 6.7 percent and 6.9 percent respectively. As a growing number

of studies have found,⁸⁹ countries with higher levels of investment in ICT experience higher economic and social development growth.

10. The telecom sector is lagging in LAC and even more within the OECD countries. Despite being, after Chile, the first country to privatize its company in 1990 and the first to liberalize its sector in 1996, Mexico indicators are worse than many countries that privatized and liberalized later on. Box 2 below shows the comparison with Brazil, that privatized much later, in 1998. Also, Table 2 shows Mexico’s poor telecom sector performance vis-à-vis other OECD countries. The main cause is the lack of effective competition in the sector and a dysfunctional regulatory framework.

Table 2: Benchmarking Mexico’s Telecommunications Tariffs with 30 OECD Countries

Concept	Mexico’s Position
Residential	4th most expensive
Business	Most expensive
International	Most expensive
Mobile	5th most expensive
Interconnection	7th most expensive
Internet Broadband DSL	Most expensive
Internet Broadband	3 rd with lowest penetration

Source: Solano et al (2006)

11. The Telecom and ICT sector faces a number of issues, including the following:

- Network readiness needs to be improved.
- Fixed line growth has not kept pace with comparable countries.
- There is a digital divide between urban and rural areas and between states—with Southern states particularly falling behind.
- More competition is needed. Telmex, the incumbent, dominates the long distance, local, and cellular telecommunications markets, and controls the last mile. It provides service to over half of all dial-up internet accounts and over a third of high-speed internet access accounts. Telmex’s net profit margins and earnings per share from continuing operations are more than twice that of its closest rival.
- Telephone charges are high in Mexico compared to Latin America, especially local loop prices for businesses.
- Mexico’s ICT regulatory framework is weak and regulators have been reluctant to take action on controversial issues. COFETEL lacks adequate enforcement powers and independence.

⁸⁹ See OECD (2004).

Box 2: Brazil's Telecommunications: Better Regulation and Better Performance

Despite being reformed many years after Mexico's telecommunications sector, Brazil's telecommunications outperform Mexico's in all dimensions. While Mexico's penetration rate was larger than Brazil before privatization in 1990, Brazil's rapid expansion after its privatization in 1998 has brought its penetration above that of Mexico (see table below). Regarding quality, both countries' performance is similar, but on pricing, Brazil's prices are significantly lower than Mexico's.

Año	Total number of subscribers per 100 in habitants		Failures per 100 lines		Comercial				Residencial			
					Charges per connection (US\$)		Monthly Subscription Payment (US\$)		Charges per connection (US\$)		Monthly Subscription Payment (US\$)	
	México	Brasil	México	Brasil	México	Brasil	México	Brasil	México	Brasil	México	Brasil
1994	10	8	6	3	919	1746	24	8	530	1746	12	1
1996	10	11	4	4	409	1107	13	9	236	1107	9	3
1999	14	16	3	5	383	69	19	13	107	69	14	9
2000	27	32	..	3	370	27	21	10	119	27	16	7
2002	41	42	2	4	362	14	20	8	117	14	16	5
2004	54	60	2	2	162	14	18	14	105	14	15	8

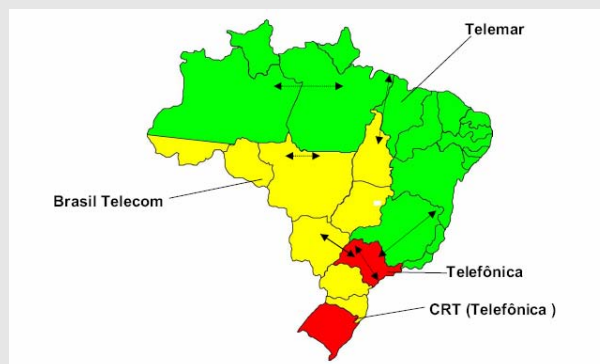
What is behind these important differences in performance in their telecommunications sectors? It seems that key to Brazil's better performance was that the privatization took place only after the sector had gone through a well structured reform, including the establishment of an independent, accountable and transparent regulatory system.

Among the differences between both processes, Brazil's reform was conceived based on the objectives of achieving universal coverage, increasing competition and to a lesser extent, maximizing revenue through the transaction, while in the case of Mexico, the emphasis was on the latter. Also key, was the restructuring of the sector that took place before it was privatized in Brazil. Before its privatization, the incumbent state-owned utility TELEBRAS was restructured on the basis of two criteria: geography and the nature of service. It was divided into 3 regional companies of fixed telephony, a long distance company, and eight cellular companies. The regional providers were allowed to compete within their regions for long-distance service with EMBRATEL (the long-distance service incumbent) creating a duopoly for these services.

The next step in the privatization was to introduce competition in the local and long distance markets until 2001, and in 2002, to open these markets to greater competition. At the present time, in most markets there are two companies that provide local services and four that provide cellular services.

Another key feature of the successful reform of Brazil's telecommunications sector was the establishment of the main regulations, including the General Law of Communications, and of the regulatory agency, ANATEL, well ahead of the privatization. ANATEL, established in 1997,

was already in operation and counted with the regulatory, administrative, supervisory and sanctioning attributions that were key elements for good regulation:



- **Administrative Autonomy:** Although ANATEL is linked to the ministry of communications, there is no hierarchical subordination with respect to sectorial attributions nor could the ministry revoke ANATEL's decisions.
- **Transparency of Decisions:** The collegial character of ANATEL's direction--a board of directors conformed by 5 members (of which one is the president with a tie-breaking vote)--provides fewer opportunities for abuse. Members of the board are proposed by the President and ratified by the Senate. Their mandate is for five years without renewal. Their mandates can be terminated after a disciplinary process.
- **Financial Autonomy:** ANATEL is funded through the "Fundo de Fiscalização das Telecomunicações," a fund where, in addition to budget transfers, all the income collected by ANATEL (concession fees, authorizations payments, spectrum fees, fines) is deposited.
- **A Broad Range of Regulatory Instruments and the Capacity for their Application:**
 - Regulation of tariffs based on the cost of capital and "price cap" regulation were adopted in order to minimize costs and promote efficiency
 - Interconnection policy is based on 3 principles: mandatory interconnection to the network, non-discrimination, and free negotiation between the parties with the possibility of intervention of ANATEL
 - ANATEL provides specific regulations to avoid anti-competitive practices (prices discrimination, misuse or concealment of information, abusive conduct) and ensure quality of services
 - Monitoring and enforcement are priorities for ANATEL that spends approximately half of its human and financial resources in these activities
- **Transparency and Accountability:** ANATEL is mandated to put under public consultation their proposed norms before being sanctioned and to have its annual report of activities approved by congress
- **Integrity and Ethics:** ANATEL's statutes prohibit that its employees participate in administrative processes in which they (or their spouse or relatives) have direct or indirect interest. The ANATEL employees can be subject of investigation if there is suspicion of friendship or affinity with the interested party.

Source: World Bank analysis on various ANATEL sources at <http://www.anatel.gov.br/>.

12. **Mexico's regulatory burden is hindering productivity.** Several studies demonstrate how regulatory burden in Mexico is still hindering business growth.⁹⁰ The OECD, in its most recent review⁹¹ of the effect of product market regulations on investment and growth found that when regulation is restrictive, productivity growth is generally below the OECD average. The OECD also estimates that if those sectors that lag in terms of productivity were to modernize their regulatory framework and align it to best practice, then productivity could increase by as much as 10 percent.⁹²

13. **Doing Business and IMCO have shown that regulation is a drag on the Mexican economy.** Mexico climbed in the overall rankings in the WBG's Doing Business in 2007, up to 43rd out of 175 countries on the publication's "Ease of Doing Business" scale. Mexico was noted as the "third top reformer in 2006" thanks to improvements in starting a business, protecting investors, and paying taxes. But this progress is not enough. Compared to other countries OECD countries and even Latin American countries, Mexico clearly lags behind in: a) time and cost to open a business;

⁹⁰ See cited OECD, World Bank Doing Business and IMCO Competitiveness studies.

⁹¹ OECD (2003).

⁹² Cotis (2005).

b) getting credit; c) registering property; d) trading across borders; e) contract enforcement; f) cost of hiring; and g) cost of tax compliance (Doing Business 2007, World Bank). The Mexican Institute for Competitiveness (IMCO) produced its own benchmarking report in 2005, which concludes that the cost of the regulatory burden currently represents 15 percent of Mexico's GDP, while the benefits from regulatory improvement could yield a 5-10 percent increase in GDP.

14. The trade and investment environment in Mexico has been transformed over the past two decades. This is in part due to the 1994 launch of the North American Free Trade Agreement (NAFTA) with the United States and Canada, and, more recently, trade agreements with the European Union, Japan, and others. Growing competitive pressures from countries such as China have also generated policy reform measures to lower trade transactions costs. The engine of export-led expansion in the second half of the 1990s, however, has slowed down in recent years. And while exports have begun to diversify away from petroleum and related products, Mexico still remains heavily dependent on a single market—the U.S.

15. Domestic reforms can have a large impact. Hanson and Robertson (2005) suggest that internal conditions in Mexico associated with its ability to expand export-supply capabilities—areas directly related to trade costs and facilitation—are a more important factor in limiting the country's export growth than China's expanded trade into the U.S. Soloaga, Wilson, and Mejía (2006) find that trade facilitation reforms in Mexico could increase exports by \$29.3 billion, equivalent to 21 percent of total Mexican manufacturing exports.

16. Logistic costs are particularly high in Mexico. They are estimated at over 20 percent of product value, while the OECD average is 9 percent.⁹³ A pilot survey of a new Logistics Perception Index (LPI), aimed at measuring operators' perceptions of countries' logistics environments, gives Mexico a score of 3.6 (7 being the best and 1 the worst), below other Latin American countries like Argentina (4.5) and Brazil (3.8).⁹⁴ Recent analyses by the government and the private sector, both of whom were concerned about Mexico's potential disadvantage vis-à-vis its competitors, also highlighted considerable logistics weaknesses.

⁹³ Guasch (2004)

⁹⁴ The LPI is a World Bank initiative implemented with the support of the Turku School of Economics and Business Administration, Finland. A pilot survey was carried out in 2003.

C. SYSTEMIC UNDERPERFORMANCE OF MEXICO'S COMPETITION AND REGULATORY SYSTEM

17. **With the exception of Banco de Mexico, most of the regulatory institutions created in the 1990's are underperforming.** Although most of these agencies were created with certain degree of autonomy, since they are deconcentrated agencies and their governance structure (e.g., the commissioners' terms) provides certain degree of independence, their effectiveness is limited due to the following systemic factors:

- (i) **Lack of accountability.** Although the commissioners and personnel of these agencies might put all their effort into fulfilling their role, there is a lack of an incentive system for the autonomous agency to confront the large mono/oligopolies. There is neither a system of checks and balances nor penalties that would make these agencies effectively fulfill their role.
- (ii) **Limited transparency that jeopardizes legitimacy and credibility of the regulatory system** and limits public support for competition and regulatory policies.
- (iii) **Constraints in statutory authority and judicial review processes** that lengthens the time it takes for enforcement and sanctions due to the "*amparo*."⁹⁵

18. **All these systemic factors with the presence of private or public monopolies or oligopolies impose constraints to the effectiveness of the competition and regulatory agencies.** These monopolies and oligopolies appear to have significant influence over the oversight agencies and institutions, and are capable to limit their ruling and block reforms required for economy-wide competitiveness. An example is the recent ruling by a federal judge that Telmex should not be considered a "dominant" player in five key segments of the Mexican telecoms market (see Box 3). To remove the systemic constraints and increase the effectiveness of the competition and regulatory agencies in Mexico, actions are needed that will:

- Provide accountability to competition and regulatory agencies, making them accountable to the executive. Rather than having the ability to revoke the agency's decisions, the executive (and maybe the legislative as is the case in the U.S.) could periodically evaluate the sectors and the agencies' performance and use an incentive system (e.g., through the budget process) to improve performance.
- Increase transparency of the decisions of the agencies so as to gain legitimacy, credibility and public support for competition policy.
- Remove the constraints in statutory authority and judicial review processes; allow for preventive measures. The "*amparo*" system should be limited in its use and or/and reformed to shorten the process; and frivolous petitions could be sanctioned.

⁹⁵ An "*amparo*" (injunction) is a remedy against acts by any authority that violate any of the individual guarantees recognized by the Mexican Constitution. It is available in all legal matters and may be invoked in criminal, civil and administrative trials.

Box 3: Telmex is Ruled as not being a "Dominant" Player in Five Key Segments of the Mexican Telecommunications Market

- In October 2006, a federal judge ruled that Telmex, the fixed-line incumbent, should not be considered a "dominant" player in five key segments of the Mexican telecoms market: local telephony, domestic long-distance (DLD), international long-distance (ILD), network access, and carrier (wholesale) services. The ruling is in response to a lawsuit brought in 1998 by Telmex against the CFC's decision to designate it as a dominant player in these segments. Telmex says that as of August it controlled 58% of DLD minutes, 36% of incoming traffic, and 76% of outgoing traffic.
- Telmex reported that of Mexico's nearly 23 million fixed lines in service, it serviced the vast majority of some 14.5 million unprofitable residential and business customers and that its competitors controlled some 47% of the remaining 8.4 million lines.
- Although Telmex is facing an increasing number of competitors (32 fixed-line, 33 long-distance, 25 data providers, 1,000 licensed ISPs, and 80 cable TV operators licensed to offer voice), it is the largest player in the market and analysts consider that it would be designated a "significant market power" in many other markets. With its market dominance, through delayed interconnection, and the use of legal challenges, Telmex has the ability to restrict effective entry of new competitors.
- In early October as well, a law on convergence was approved that will allow Telmex to enter the cable TV market, but will also introduce greater competition from the cable TV operators into voice telecommunications.

Source: Various industry analyses.

Reforms of Competition Policy

19. To improve the effectiveness of competition policy in Mexico, actions are needed that will:

- Remove the constraints in statutory authority and judicial review processes; allow for preventive measures. Reduce the time it takes for enforcement and sanctions due to the "*amparo*." The "*amparo*" system should be limited in its use and or/and reformed to shorten the process. Sanctions could also be imposed if the *amparo* request proves to be frivolous.
- Establish "stare decisis" for CFC's decisions so that they become binding while they are being subjected to a judicial review;
- Enhance CFC's collaboration with different regulatory agencies and states through harmonization agreements, or/and align jurisdiction;
- Improve the deterrent effects of the existing Federal Law on Competition Policy, by improving the collection of sanctions; and
- Increase public support for competition policy.

20. The amendments to the Federal Law on Economic Competition have been a great advance, but it is critical that the associated regulation is provided as soon as possible and its application and enforcement implemented. The amendments—that reform 25 articles, repeal 1, and add 11 more—were approved in April 2006 and went

into effect on June 29, 2006. The amendments are designed to increase the effectiveness of detecting and sanctioning monopoly practices. They classify new anticompetitive actions, increase fines and expand the capacity of the CFC to divest the assets of firms that engage in anti-competitive practices, in cases where they have not complied with previous orders; undertake verification visits; implement leniency programs; and order preventative measures. To make the amendments concrete, the corresponding regulation needs to be issued, which is expected to occur by the end of December 2006. Training and diffusion efforts will then be necessary to support the implementation and application of the amended law.

Box 4: Competition: Selected Evidence and Effects

- A study of the effect of pro-competitive regulatory reform in several industries in the United States found that annual welfare gains in affected sectors were more than 7%, with 90% of the benefits flowing to consumers (OECD).
- Increasing competitive pressure can increase the probability of firm innovation by more than 50% (World Bank, 2004).
- According to a survey of Mexican firms, the two largest obstacles to business development are government monopolies and private monopolies (CEESP, 2005).

Reforms of Sectoral Regulatory Systems

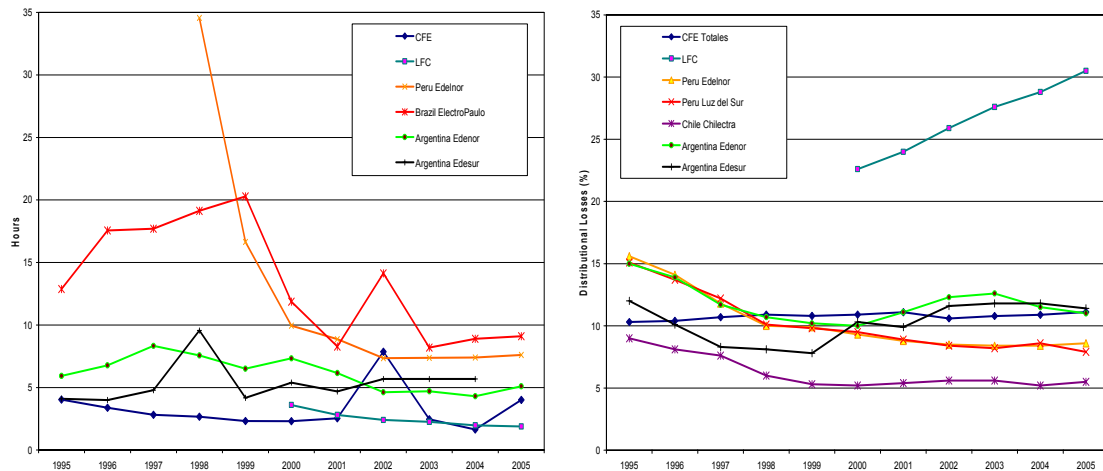
21. **Mexico needs to implement a number of strategic measures to ensure the long term sustainability and competitiveness of the energy sector.** In the hydrocarbons sector, about US\$130 billion is estimated to be required in the period 2004–2012 to restore reserves and minimize imports through activities in exploration and production, refining, petrochemicals, and others.⁹⁶ Likewise, the electricity sector needs an important amount of resources to finance additional capacity and modernize interconnected infrastructure. The growing dependence on fuel imports and the gradual deterioration of energy infrastructure calls for the implementation of a number of far-reaching strategic measures, which may include the following:

- **Lower fiscal dependence on oil revenue.** Ways need to be found to lower the country's fiscal and budgetary dependence on oil revenues and allow for autonomous enterprise management in hydrocarbons and electricity. One way is to strengthen other sectors of the economy so they can act as a substitute for Mexican Petroleum (PEMEX) budgetary support. The high leakage factor of subsidies (64 percent of value in electricity) is highly regressive and increases the fiscal burden. Private sector participation can also help minimize the fiscal burden and financing needs of the hydrocarbons and electricity industries. Increased transparency of sector performance is key to inducing improved performance.
- **Initiate national dialogue.** A structured national dialogue should include relevant stakeholders and expert analysts to review the options that could ensure the long term sustainability of the energy sector (e.g., national expert committee). In parallel, strengthen the capacity of political parties, senate and congress members, and the civil society to analyze energy sector bottlenecks.

⁹⁶ Acevedo (2004).

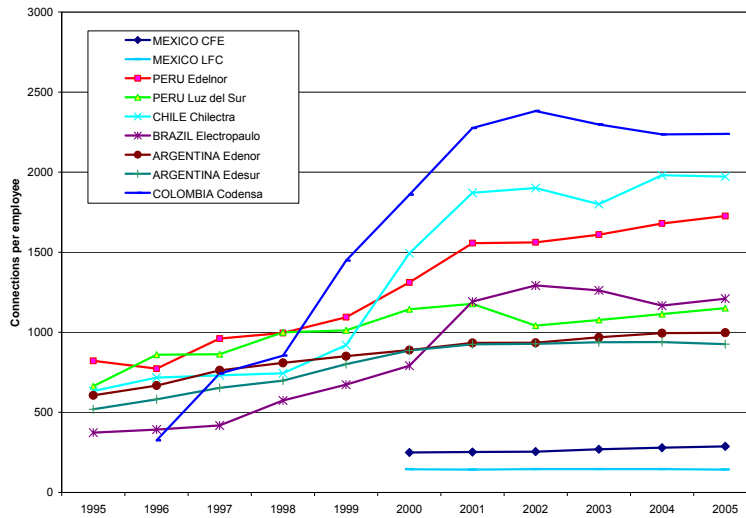
- Modernize the energy sector and reduce dependence on fuel imports.** Strategies should include a) the implementation of a sound program of investments and capital expenditures; b) fuel diversification measures; c) taking advantage of private sector investment interests; and the promotion of strategic partnerships that bring additional sources of capital; d) design and implementation of innovative legal and financial instruments to lower risks associated with fuel price, fuel availability, and other (e.g., innovative covenants in power purchase agreements, phasing out of PIDIREGAS (infrastructure projects with deferred expenditure recording), fuel price hedging, fixed price coverage with reference price or cap); and e) implementation of a program to improve service quality and performance to international levels.
- Improve the efficiency of the service providers to lower prices and improve quality.** The service quality and productivity of Mexico's main electricity provider, the *Comisión Federal de Electricidad* (National Electric Company, CFE), has improved but still significantly lags behind similar international comparators. For example, when annual interruptions and distribution losses are compared to Latin American private distribution companies, the CFE's performance is poor⁹⁷ (Figures 4 and 5), and the service quality and operating efficiency of the other electricity provider, *Luz y Fuerza del Centro* (LFC), are worse (Table 3).

Figure 4: Annual Interruptions (hours) per Electricity Connection and Electricity Distribution Losses (%)



⁹⁷ No data on annual interruptions have been reported for public utilities or public distribution companies.

Figure 5: Number of Electricity Connections per Worker in Distribution Segment



Sources: CFE financial data; and Andres, Foster, and Guasch (2006).

Table 3: CFE and LFC Performance

		1995	1998	2002	2003	2004	2005
Interruption of Service (min/customer)	CFE	242	225	124	120	89	
	LFC	—	374	144	135	119	113
Complaints (no./1,000 customers month)	CFE	14	10.7	4.2	4.1	3.8	3.9
	LFC	—	6.7	4.4	4.3	6.6	9.3
Connection time, new customers (days)	CFE	2.3	1.4	1.2	1.1	1.1	1.1
	LFC	—	10	5.5	6.0	6.1	6.3

- Strengthen policy and regulatory frameworks.** New investments will require the consolidation of policies and regulatory frameworks that increase long term certainty levels for all participants in different segments of the hydrocarbons and electricity supply chains, and attract desired investment, and effectively discipline the current service providers. Lack of autonomy is also an issue. The CRE as a “deconcentrated” agency does not have constitutional autonomy like BANXICO and lacks the necessary resources. Also greater transparency regarding the performance of the sector is necessary. Lastly, the CRE lacks appropriate regulatory instruments: (i) the capacity to fix economically efficient electricity tariffs, without cross subsidies, and to bring transparency to the allocation of subsidies; (ii) a system of regulatory accounting that allows the proper inference and evaluation of costs and also allows for the vertical separation of the business or operations centers (generation, transmission and distribution); (iii) rules for a dispatch system to increase competition and to reduce costs; (iv) a regulatory framework for co-generation; and (v) appropriate jurisdiction for quality regulation (and for setting penalties and fines for tension variation, and blackouts).
- Consider allowing for competition in the energy sector.** That could be secured by PEMEX participating in the generation of electricity and by CFE in Natural Gas

Box 5: Energy: Selected Evidence and Effects

- Inadequate investments in energy infrastructure have had a significant impact on TFP growth in Mexican manufacturing (Castañeda Sabido, 2003).
- The quality of the electricity service is poor compared to other countries. Service interruptions and voltage fluctuations affect the overall productivity levels of industries and prevent the installation of modern electronic equipment (World Bank, 2005d; IMCO, 2005a; and others).

22. Private sector provision of telecom and ICT infrastructure needs to be expanded. Although current government programs provide important contributions towards the development of a knowledge economy, they do not adequately address the most important challenge: that of dramatically increasing and expanding private sector provision of ICT infrastructure in Mexico. To do so would require a level playing field, elimination of entry barriers, healthy competition, and increased access to ICT services. The following are some recommendations to facilitate these tasks:

- **Create a level playing field through institutional changes.** Rebuilding the credibility, effectiveness, independence, and transparency of COFETEL is necessary. Critical weakness exists in regulatory governance and regulatory substance, and in the judicial procedures. The following changes could benefit COFETEL:
 - Grant to COFETEL real independence and strengthen its regulatory capacity. The COFETEL is a deconcentrated agency that does not have constitutional autonomy like, e.g., BANXICO. The Secretariat of Communications and Transport rather than having a revoking capacity, should play an overseeing role, making, for example periodic evaluations of the performance of the sector.
 - Require that the processes of decision making be open to increase their transparency. Instead of bilateral negotiations and close round tables, use public consultation (i.e., public hearings, consultative documents, etc).
 - Focus judicial review on the cases that have a reasonable justification. Since the “*amparo*” system almost has paralyzed the sector, an alternative mechanism for the resolution of conflicts needs to be developed, with specialized courts, arbitration and mediation.
 - Ensure that COFETEL has the adequate regulatory tools. It should count with appropriate methodology (complemented with benchmarking analysis) to evaluate interconnection charges.
 - Ensure that COFETEL and the CFC can obtain adequate data for the regulatory process and anti-trust cases, respectively. Currently, companies can present “*amparos*” against requirements of information by the regulator or the CFC, which is not conducive to an atmosphere in which entry and competition is encouraged.
 - Effective application of the law against anticompetitive practices, deficient provision of services by dominant carriers to other operators, exclusionary access, etc, from CFC and COFETEL is necessary.

- **Eliminate entry barriers and foster competition.** The licensing regime for new entrants should be simplified and streamlined. Requirements to register contracts with COFETEL for all but the incumbent should be eliminated. Legacy voice-centric regulations should be eliminated and automatic review of regulations should be required. Mexico is the only OECD country without broadband competition in the last mile, now controlled by TELMEX. That should be changed.
- **Structural reforms in the telecom sector.** An extreme case that could foster competition would be the break up of large incumbents in order to foster competition as it was done in the case of AT&T in the U.S. in 1982 (see Box 6).
- **Promote equity and increase access.** Broadband deployment should be fostered and local loop costs reduced through competition, eliminating TELMEX control of the last mile. The universal access program should be strengthened. The government should undertake a consensus-building campaign on the priorities for universal access and cross-subsidies issues should be addressed.

Box 6: The Divestiture of AT&T and its Benefits and Costs

- After a lengthy anti-trust suit against AT&T that started in 1974 by the U.S. Department of Justice, a settlement was finalized in 1982 by which AT&T agreed to divest its local exchange service operating companies. The settlement liberated AT&T from a 1956 antitrust consent decree that prevented it from entering and competing in non-regulated businesses, such as data processing. Effective January 1, 1984, AT&T's local operations were split into seven independent Regional Bell Operating Companies (RBOCs). The settlement created a competitor in the long-distance market, and it allowed the RBOCs to introduce new technologies, but it forbid them to carry telephone calls from one local access and transport area to another.
- The divestiture of AT&T, by introducing competition in the long-distance market, was expected to produce benefits in that segment. An evaluation after 10 years of the divestiture, estimated that the per minute price has fallen 65% relative to the general price level. Furthermore, other evidence suggests that local telephone markets have also produced benefits: local exchange carriers realized cost savings in responding to competitive pressures with gains of 3-5 percent of total cost or of about US\$72 million for the representative firm.
- One cost of the divestiture, however, has been the prohibition to RBOCs to manufacture telephone equipment or design new telephone products. This was done with the intention to prevent them from using their profits from local telephone service to subsidize new businesses. It has, however, hampered incentives to innovation by the RBOCs. Also, this provision created the need for judicial supervision of the RBOCs and imposed lengthy waits for the RBOCs to sell or license a new technology. These costs/limitations were removed with the Telecommunications Act of 1996, that deregulated some segments in order to induce innovation and introduction of new technologies.

Source: Ying and Shin (1993) and Robert E. Hall

Box 7: ICT and Telecommunications: Selected Evidence and Effects

- Countries with higher levels of investment in ICTs experience higher economic and social development growth (OECD, 2004).
- Mexico's level of ICT expenditure (3.1%) as a share of GDP is substantially lower than Latin American countries such as Chile (6.7%), Brazil's (6.9%), Argentina (5.7%), and Peru (6.9%) (World Bank World Development Indicators, 2003).
- Business telephone charges (factoring in installation costs, monthly fees, and per minute rates) in Mexico are over 3 times greater than charges in Argentina and 4 times greater than charges in Brazil.

Administrative reforms to reduce pervasive “red tape.”

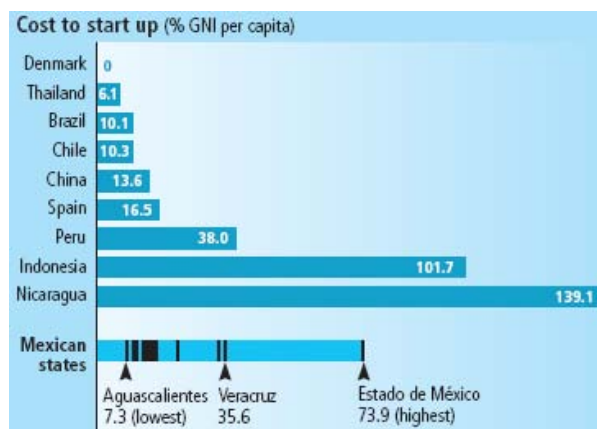
23. Regulatory reforms to boost competitiveness include:

- (i) Procedures that impose unnecessary large burdens on entrepreneurs need to be eliminated, or improved (e.g., starting a business, licensing, registering property, employment regulation, contractual enforcement, tax regulation); and
- (ii) Business interaction with government needs to be streamlined, so as to reduce uncertainty and implementation efficiency issues;

24. There are substantial differences in the business environment across states in Mexico. Studies by the World Bank’s Foreign Investment Advisory Service (FIAS) / Doing Business highlight important differences across states, suggesting regional priorities for reforms. Sub-national analysis is particularly relevant given that state and local governments have jurisdiction over many investment climate reforms, including procedures to open a business, issue licenses, register property, and enforce contracts.

25. When ranked globally on the cost of starting a business, Mexican states vary significantly (Figure 6) Aguascalientes is the least costly—7.3 percent of state income per capita—and yet it still ranks 33rd globally in the cost to start up a business. Jalisco follows, costing 10.9 percent of state income per capita, at 52nd place, behind Gabarone (Botswana) and Santiago (Chile). Estado de México ranks lowest at 127th place—far behind Lima (Peru) and Guatemala City. However, it is less expensive to start a business in any of the Mexican states than in Jakarta or Managua.

Figure 6: Business Start-Up Cost in Mexico and other selected economies



Source: *Doing Business* database

26. Benchmarking at the sub-national level can spur competition and generate needed reforms. Mexico City and the 12 states, of the sample, vary dramatically on Doing Business indicators, with Aguascalientes outperforming the rest (Table 4). But a big gap remains between Mexico’s best and the ease of doing business in Bangkok or Johannesburg. Similarly, IMCO showed a large variation in investment and competitiveness factors across states. States may look for best practices within Mexico—

for example, by introducing online procedures to register businesses or property as in Aguascalientes—while also aiming for the pace and nature of reform in countries like Colombia, Vietnam or Georgia. Establishing benchmarks at the sub-national level allows reformers to focus on the main constraints to economic growth. Pressure to reform can come from contrasting how different localities implement identical national-level regulations. Much of the inefficiency is in local administrative procedures, which can be changed by a governor or a mayor. And as the news about reforms spreads, there is increased interest to replicate success stories.

Table 4: Doing Business in Mexico: Where is it Easiest?

1 Aguascalientes (Easiest)	8 San Luis Potosí
2 Guanajuato	9 Coahuila
3 Chihuahua	10 Mexico City
4 Jalisco	11 Estado de México
5 Nuevo León	12 Puebla
6 Veracruz	13 Querétaro (Most difficult)
7 Yucatán	

Source: *Doing Business* database.

27. Important actions to improve regulation include:

- Strengthening public consultation;
- Harmonizing of regulations across the different levels of government;
- Expanding the implementation of the Rapid Business Opening System (SARE) to reduce the time and cost of business opening regulations, and creating a system to measure the SARE’s effectiveness and monitor its implementation;
- Reinforcing the Regulatory Impact Assessment (RIA) process in federal institutions, as well as creating a monitoring and evaluation framework for RIAs: and
- Increasing cooperation with sub-national jurisdictions and the private sector to keep improving regulations at all levels.

Box 8: Regulation: Selected Evidence and Effects

- Modernizing regulatory frameworks could increase productivity by as much as 10 percent in lagging sectors (Cotis, 2005).
- Starting a business takes 58 days in Mexico, compared with 5 days in the United States. Dealing with licenses takes 222 days at a cost of 159 percent of income per capita, while it only takes 70 days in the United States at a cost of 17 percent of per capita income (World Bank, *Doing Business* database).
- The cost of the regulatory burden in Mexico is 15 percent of GDP (IMCO, 2005).

28. **Key actions to facilitate trade and reduce logistics costs include:**

- **Further lowering tariffs and non-tariff barriers and reducing the dispersion of tariff rates (consolidation at a few levels).** Lowering trade barriers offers gains for consumers and allows firms to acquire lower cost inputs. The simplification or harmonization of tariffs would make more productive chains viable.⁹⁸ This is particularly important given the need to continue to diversify exports beyond oil and the major export destination, which continues to be the United States.
- **Expanded use of information technology and reduced regulation can help lower trade costs.** Making trade procedures and documentation available electronically will reduce the time and costs for firms to conduct business abroad.
- **Key internal corridors and logistics centers could be improved,** as manufacturers face high costs to deliver their products from/to the border, ports, or airports and access to those facilitates are already fairly congested. Elevated transport costs, times and incidence of delays have also led to high inventory levels for businesses.
- **Enhancing customs efficiency.** The lack of flexibility in working hours and locations for product clearance adds on delays and costs. The customs administration would also benefit from a modernization of its infrastructure, including better use of information technology in ports, airports and land border crossings.
- **Strengthening the organization of firms' supply-chains.** Manufacturing companies, especially SMEs, often incur higher costs due to a lack of skills in modern supply-chain management techniques. This involves, through BDS and logistic assistance, rethinking the complete supply chain from material and services sourcing to the use of specialized distribution companies to deliver the end product to the client.

Box 9: Trade Facilitation and Logistics: Selected Evidence and Effects

- Trade facilitation reforms in Mexico could increase exports by \$29.3 billion, equivalent to 21 percent of total Mexican manufacturing exports (Soloaga, Wilson, and Mejía, 2006).
- Despite the gains from NAFTA, Mexico has been losing export market share within the United States in recent years. Of the top ten types of Mexican imports in the United States, only two—petroleum and total agricultural products—gained market share between 2001 and 2005 (U.S. Census Bureau, Foreign Trade Statistics).
- Export-supply capabilities were more of a constraining factor than import-demand conditions in the United States for Mexican exports (Hanson and Robertson, 2005).
- Reducing logistics costs from over 20 percent to 12 percent in Mexico would have a significant impact on economic activity and job creation (Guasch, 2004; Guasch and Kogan, 2003).
- Mexico spends almost double what the United States does on transport as a percentage of GDP (IMCO, 2005 based on INEGI).

29. **But if an intensive reform effort to remove the systemic and specific constraints to the competition and regulatory system is not possible, Mexico could**

⁹⁸ Currently, in some sectors it is more profitable to import final goods under preferential treatment than importing the inputs and raw materials to produce those same goods domestically.

take a more gradual approach. Although this might not ensure the needed competitiveness gains, it could specifically:

- Start with a simple approach and consider administrative reforms that they do not need legislative changes.
- Introduce transparency by publishing as much regulatory information as possible.
- Eliminate unnecessary procedures, reducing the required number of opportunities for bureaucrats to interact with entrepreneurs.
- Create opportunities for reform by making public benchmarking information on outcomes and performance in the regulated sector.

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Chapter 4: STRENGTHENING SOCIAL PROTECTION IN MEXICO-- RECENT PROGRESS, FUTURE CHALLENGES

Andrew D. Mason, Jaime Saavedra, Maria-Luisa Escobar, Gladys Lopez-Acevedo,
and Marcela Rubio Sanchez

Despite recent expansion of programs oriented towards the poor, the Mexican system of social protection still closely mirrors the fragmented systems found in much of Latin America in which the main sources of protection are linked to one's participation in the labor market. Indeed, large groups of the population remain uncovered by formal social security institutions and lack adequate access to other risk management mechanisms that can protect them against impoverishing health shocks and poverty in old age. In this context, this policy note: (i) outlines key social protection challenges facing Mexico – extending access and coverage, improving quality, increasing financial sustainability, and improving incentive compatibility across programs and institutions, and (ii) examines options for strengthening the system.

The note highlights that Mexican policymakers face important strategic choices about how to move forward – specifically, whether to strengthen the current, fragmented system or to move toward a more unified, universal system of social protection. It also highlights the importance that the incoming administration articulates a long-term vision and strategy for social protection. This will facilitate the design and implementation of reform measures for the short and medium term that are consistent with the country's long term goals.

The note also discusses several areas of action for the immediate future that may be critical in order to meet Mexico's long-term social protection goals, regardless of its choice of strategic direction. These include: (i) assuring the fiscal sustainability of Mexico's main social security institutions, IMSS and ISSSTE; (ii) pursuing micro-efficiency improvements in the health sector; and (iii) strengthening the incentive compatibility of programs and benefits across the social protection system.

Introduction

1. **The Mexican system of social protection closely mirrors the fragmented systems found in much of Latin America, in which the main sources of protection are linked to the form of one's participation in the labor market.** It embodies a social contract that remains unfulfilled, in which large groups of the population are not covered by formal sector institutions and lack adequate access to risk management mechanisms, especially protection against health shocks and poverty in old age. Traditionally, the wealthiest segments of the Mexican population have had access to formal social security. More recently, including during the last *sexenio*, the poor have benefited from greater access to social assistance programs as well as to financial protection in health. Nonetheless, the data indicate that there remain significant gaps in protection in health

and in old age security. Gaps in the safety net are present at all levels of the income distribution – but they are greatest, and by a significant margin – among the poor.

2. **Against this background, there is a growing consensus among policymakers in Mexico of the value of assuring all citizens access to adequate risk management mechanisms in the long-term – in particular, an adequate level of financial protection in health and at least a minimum level of income security in old age.** There is also a shared appreciation of the need for increasing efficiency of the current social protection system, of assuring its financial sustainability, and improving the quality of the basic services currently received by Mexicans across the income distribution.

3. **This policy note examines the main challenges faced currently by Mexico as well as options for strengthening the country’s social protection system.** While social protection can be defined to include many types of social programs, this note places particular emphasis on strengthening social protection in health and old age security. To do this, the note briefly reviews the state of social protection in the context of the Mexican labor market and highlights both longstanding and emerging policy challenges. It then explores the key strategic choices facing Mexican policymakers and outlines policy options for pursuing the long-term goal of adequate access to social protection for all Mexicans. The note concludes by outlining a short-to-medium term policy agenda in pursuit of a universal social protection system in the long-term.

4. The note finds that despite recent progress in providing support to the poor through such programs as *Oportunidades* and *Seguro Popular*, Mexico continues to face long-standing challenges including:

- increasing social protection *coverage* to currently uncovered groups,
- improving *quality of services*,
- strengthening the *institutional framework* for the delivery of social protection, and
- ensuring *financial sustainability* of the system.

5. Recent growth of social assistance oriented toward the poor has also generated new challenges, specifically, to ensure that this growing constellation of social programs does not adversely affect workers’ ***incentives for formal sector employment and personal savings*** but rather contributes to the country’s broader efforts to increase economic productivity and growth and generate sustainable poverty reduction.

6. **The note concludes that concerted efforts will be required if the Government is to ensure that all Mexicans are adequately protected against risk in the long-term, and that the country can continue to move to OECD standards.** While Mexico faces an ambitious long-term policy agenda for strengthening social protection in the long-term, the analysis points to a number of concrete and important steps that the Government can take in the short-to-medium term to move towards its longer term goals. Indeed, at this moment of political transition, Mexico faces some important strategic

choices about how to move forward – specifically, whether to focus on strengthening the current, fragmented system or to begin moving toward a more unified, universal system of social protection. An important step in the short-term will be to clarify and articulate a *long-term vision and strategy* for social protection in Mexico and, in this context, design and implement in the short run, incremental policy reforms that are consistent with this long term view.

7. Several short-to-medium term actions will also be important to improving the equity, efficiency, and sustainability of the social protection system in the short-to-medium term, regardless of the Government’s choice regarding a long-term strategic direction. Among these: (i) assuring the *fiscal sustainability* of the main social security institutions, *Instituto Mexicano de Seguro Social (IMSS)* and the *Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE)*; (ii) pursuing *micro-efficiency improvements in the health sector*; and (iii) strengthening the *consistency and incentive compatibility* of social protection program structures and benefits across Mexico’s social protection system.

8. Taking these short-to-medium term actions would make an important contribution to Mexico’s ability to meeting its key social protection challenges in the long-term. Moreover, pursuing fiscal sustainability of social security institutions and micro-efficiency reforms in health should generate fiscal savings that could contribute to broader coverage of social protection in health and old age security to those currently uncovered.

The State of Social Protection in Mexico

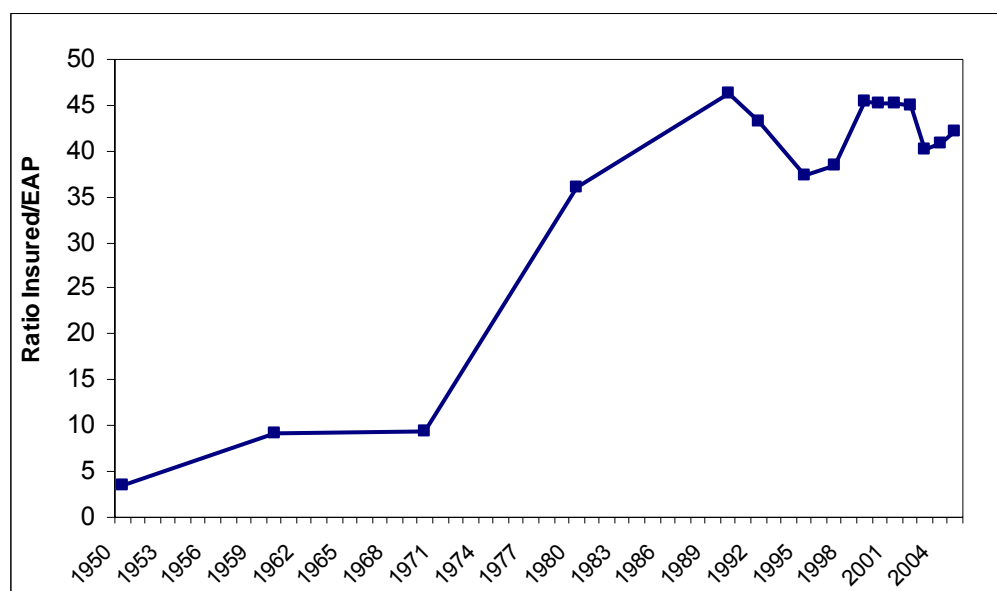
9. The social protection system in Mexico, as in many Latin American countries, is fragmented on the basis of labor market status. On one side of the spectrum, workers in the formal sector and their families are provided social protection by Mexico’s social security institutions, the largest of which are IMSS and ISSSTE, respectively.⁹⁹ Informal workers and their families, in contrast, have relatively limited access to social protection. For health care, these citizens rely mostly on the *Secretaría de Salud (SSA)* at the federal and state levels or pay fees-for-services out-of-pocket to care providers in the private sector. In old age, these citizens do not have a pension and hence rely on own savings and intra-family support. Some of those uncovered by social security have access to a set of poverty-targeted programs, such as *Oportunidades* and *Seguro Popular*, that together play a safety-net role.

10. Data suggest that while social security coverage in Mexico grew rapidly between 1950 and 1990, coverage rates have essentially been stagnant since the end of the 1990s. Data on IMSS show, for example, that social security coverage among private sector workers grew from less than 5 percent of economically active workers in 1950 to around 40 percent in 1990 (Figure 1). Coverage declined in the first half of the

⁹⁹ IMSS is the employee social security institute for private sector employees in Mexico and for IMSS’s own health workers. ISSSTE is the social security institute for public sector workers of the federal level. PEMEX, the state-owned oil company, the Mexican Armed Forces, and universities also have their own, smaller social security programs.

1990s and then rebounded again in the latter half of the decade, reaching 35.8 percent in 1999. During the 2000s, coverage rates were basically constant; by 2005, coverage rates were only 1 percentage point higher, at 36.8 percent. Moreover, cross-country data indicate that by the early 2000s social security coverage in Mexico was lower than would have been expected, given Mexico's level of per capita income (Perry et al, forthcoming).

Figure 1: IMSS Coverage as a Share of Mexico's Economically Active Population, 1950-2005



Source: Martinez (2006: 65). For the period 1950-1990: National Institute of Geographic and Informatics Statistics (INEGI), *Censos de Población: La Participación en la actividad económica de México*. For the period 1992-2005: National Institute of Geographic and Informatics Statistics (INEGI), *Memoria Estadística del IMSS, 2004*; *Reporte de Gestión, IMSS*; *Proyecciones de población, CONAPO, 2000*; *Enadid 1992 – Encuesta Nacional de Empleo*.

11. **At the same time, Mexico made considerable progress in extending social programs to the poor over the last *sexenio*, most notably through expansion of *Oportunidades* and through creation of *Seguro Popular*, a program to strengthen social protection in health, largely among poor, non-salaried workers.** Indeed, during the last *sexenio*, *Oportunidades* expanded both in size and in scope. In addition to providing a cash transfer to the poor in rural areas conditional on ensuring family investments in basic education, health and nutrition, the program was extended into urban areas. Moreover, *Oportunidades* was expanded to include educational grants for high school education, along with a savings plan for participating high school students, called “Youth with Opportunities.” Currently, about 5 million families benefit from *Oportunidades*, 3.4 million in rural areas and 1.6 million in urban areas. This is up from around 2.5 million families in total in 2000.¹⁰⁰ In addition, during the last *sexenio*, the

¹⁰⁰ *Oportunidades*, formerly called *Progresá*, has been the subject of a series of rigorous impact evaluations. These evaluations have shown that *Progresá/Oportunidades* has had positive impacts on poor children's enrollment, attendance, and persistence in school. The program has also been found to increase

Government of Mexico piloted and, in 2004, officially launched *Seguro Popular*, a new health financing arrangement administered by the Secretariat of Health (SSA) and aimed at providing better health service coverage and financial protection in health to families, primarily among the poor, without social security coverage. *Seguro Popular*¹⁰¹ expanded rapidly during the second part of the *sexenio* and covered 11.5 million individuals by the first quarter of 2006.¹⁰²

12. **Household survey data from Mexico indicate the incidence of formal social security strongly favors those in the upper income deciles, while the incidence of poverty-targeted programs like *Oportunidades* and *Seguro Popular* strongly favor the poor (Figures 2 and 3).** Specifically, analysis of ENIGH data from 2004 show that only around 5 percent of households in the poorest decile and 20 percent of households in the second decile had access to formal social security in 2004. This compares to over 60 percent of households in the wealthiest two deciles. In contrast, coverage of *Oportunidades* and *Seguro Popular* are highest among the poor and lowest among the wealthy. For example, around 55 percent of households in the poorest decile were covered by *Oportunidades* in 2004 (Figure 2); nearly 10 percent of households in the poorest decile were covered by *Seguro Popular* according to the 2004 ENIGH survey, although coverage of the poor has almost certainly increased since then.¹⁰³

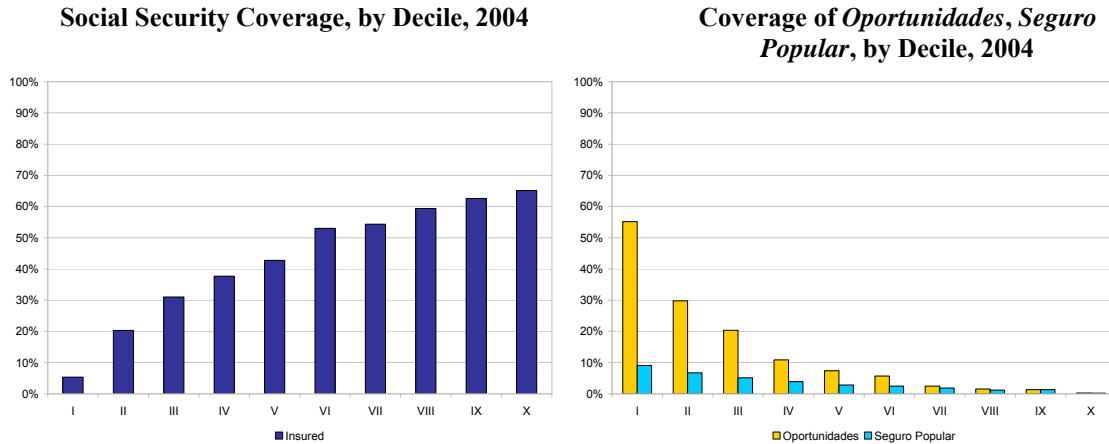
food consumption, growth and nutritional monitoring, and reduce the incidence of illness of poor children (see, for example, Rawlings and Rubio 2005, Skoufias 2005).

¹⁰¹ Affiliation to *Seguro Popular* is carried through two stages. The allocation of federal *Seguro Popular* funds to the states and the corresponding state contributions are jointly defined by the federal and state governments through an *Acuerdo de Coordinación*. Secondly, state health ministries set up *Regímenes Estatales de Protección Social en Salud* (REPSS) which are responsible for the promotion of the program and affiliation of beneficiaries.

¹⁰² Gakidou, et.al (2006).

¹⁰³ According to the October 2005 Census, 21 percent of *Seguro Popular* affiliates belong to the second income (wealth) decile and 19 percent belong to the poorest decile. The fraction declines sharply as income increases. Affiliation is relatively high in rural areas and in the relatively deprived municipalities. However, in many cases, lack of health facilities is a binding constraint for increased coverage in the most deprived communities.

Figure 2: Social security coverage is highest among the wealthiest Mexicans, while coverage of social assistance (e.g., *Oportunidades*, *Seguro Popular*) is highest among the poor

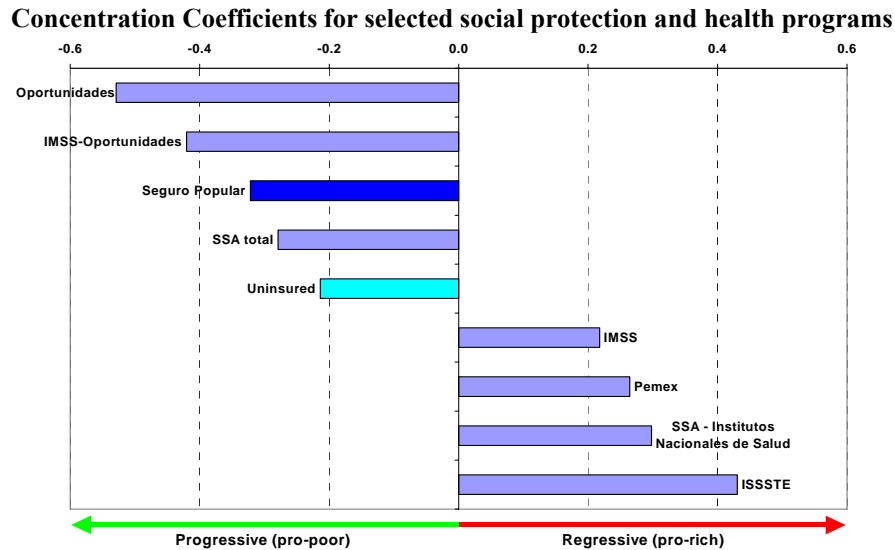


Source: World Bank staff calculations, using ENIGH 2004 data.

Notes: (1) A household is classified as covered by social security if at least one of its members participates in any of the formal social security schemes, including IMSS, ISSSTE, PEMEX, the Armed Forces, etc.

(2) Some of *Seguro Popular* beneficiaries also participate in *Oportunidades*. This overlap is as high as 72% of *Seguro Popular* beneficiaries participating in *Oportunidades* in the first decile, but the overlap decreases very rapidly with income.

Figure 3: Coverage of formal Social Security is regressive, while coverage of poverty-targeted programs (e.g., *Oportunidades*, *IMSS-Oportunidades*, *Seguro Popular*) is progressive¹⁰⁴



Source: Scott (2006), based on ENIGH 2004.

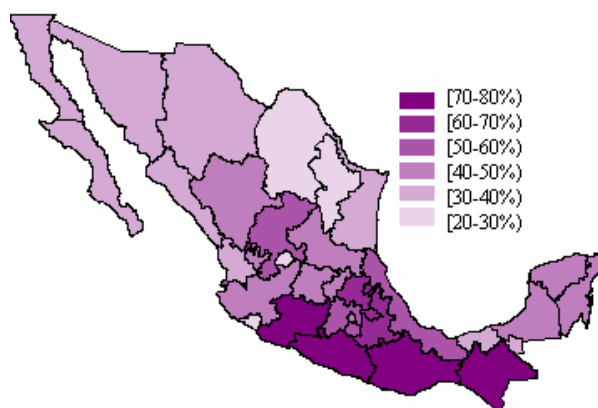
13. **Access to social protection also varies significantly across the states of Mexico.** This can be seen in Map 1, which shows the share of the population *not* covered by pensions, by state, in 2005. Similar coverage gaps are seen with respect to health insurance. Coverage gaps are particularly large in Chiapas, Guerrero, Oaxaca, and Hidalgo, for example, where more than half of the populations lack health insurance.¹⁰⁵ At the same time, in states such as Coahuila, Nuevo Leon, and Sonora the insured clearly outnumber the uninsured. These differences reflect, in part, differences in the structures of the economies in different states and, in particular, the size and structures of the formal economies. Differences across states are also reflected in basic health outcomes. Estimated infant mortality rates (IMR) are 26.5 and 26.3 per 1,000 live births in Oaxaca and Chiapas, respectively, while they are 15.5 and 14.7 per 1,000, respectively in Coahuila and Nuevo Leon.¹⁰⁶

¹⁰⁴ The data presented in Figure 2 focus on health coverage for IMSS, ISSSTE, and Pemex. Ongoing World Bank analysis of IMSS and ISSSTE pensioners, using ENIGH 2004 similarly show that coverage of formal pension programs are regressive. This is to be expected, given that pensions and health are part of a larger social security package provided by Mexico's formal social security institutions.

¹⁰⁵ "Situación de Salud en México 2004. Indicadores Básicos" (2004).

¹⁰⁶ Total health spending across states also exhibits similar patterns. In 2004, total health expenditure per capita was \$1,326 (Mexican Pesos) in Chiapas and \$1,359 in Oaxaca as compared to \$6,908 in the Federal District.

Map 1: Share of Mexican Population Not Covered by Pensions, by State, 2005



Source: World Bank staff estimates, based on *Conteo de Población y Vivienda* 2005.

14. **Overall, pension coverage remains low overall, and particularly among the poor.** Of the elderly living in urban areas, only 22 percent receive a pension of any sort (Table 1). Of the elderly living in rural areas, an even smaller fraction, about 5 percent, receive a pension. Holders of AFORE (retirement fund) accounts and prospective IMSS pensioners (affiliates among currently active workers) are concentrated at the high end of the income distribution (Table 2).¹⁰⁷

Table 1: Pension coverage among the elderly (in percent)

	Urban		Rural	
	<i>Extreme poor</i>	<i>All</i>	<i>Extreme poor</i>	<i>All</i>
1996	9.3	25.6	1.2	8.1
2002	7.7	28.5	1.2	8.3
2004	5.4	29.7	3.0	13.2

Source: World Bank staff calculations based on ENIGH data.

Note: Elderly defined as people over the age of 65.

¹⁰⁷ Elderly persons who lack a formal pension have had potential access to several social assistance programs that provide some support for the aged. This group of programs was not designed in an integral or coherent way to ensure old age security the elderly and coverage levels do not compensate for the large gaps in formal pension coverage. Nonetheless, they do appear to provide a measure of protection to the elderly. For more details on these programs, see Annex 1. In addition, the Fox administration also recently launched a program called MAROP, *Mecanismo de Ahorro para el Retiro Oportunidades*. The scheme is designed to enable *Oportunidades* beneficiaries to save for retirement through individual savings accounts, similar to the AFORES. Under the program, the Federal Government will contribute a small incentive to those who make voluntary contributions to their account as long as they remain *Oportunidades* beneficiaries. The accounts are portable to the AFORE system.

Table 2: Distribution of Employed Workers who are AFORE holders and IMSS beneficiaries, 2004

	AFORE	IMSS
Decile	holder	beneficiaries
I	0.6%	0.8%
II	2.4%	3.4%
III	3.5%	4.7%
IV	5.2%	6.1%
V	8.0%	9.5%
VI	9.5%	10.6%
VII	13.0%	13.8%
VIII	15.1%	15.1%
IX	19.6%	17.3%
X	23.2%	18.7%
Region		
Urban	81.0%	78.3%
Rural	19.0%	21.7%

Source: World Bank staff calculations based on ENIGH.

Note: AFORE holders are those workers who have an AFORE (Retirement Fund) as a *prestación*. IMSS beneficiaries are those workers who currently receive health coverage at IMSS. If these workers have completed the required number of years of service (25) when they reach retirement age, they will become IMSS pensioners.

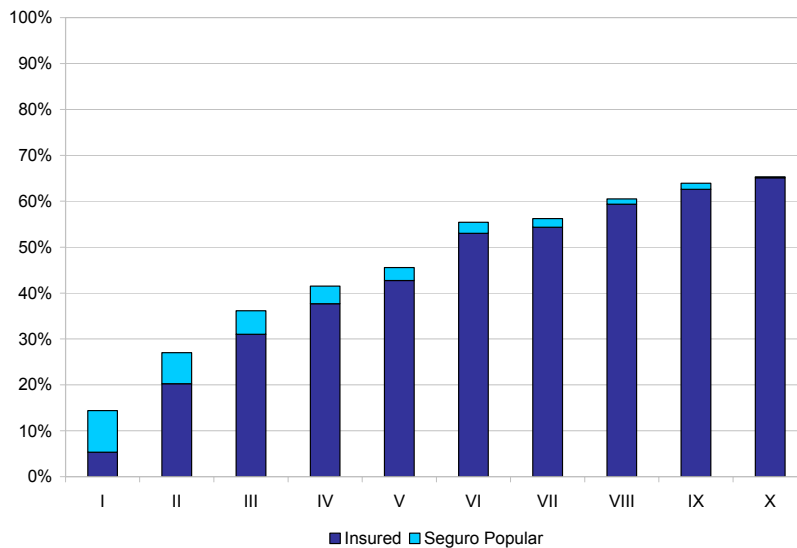
15. **Mexico's current pension system is designed to provide important incentives (subsidies) to the formal sector poor in the form of the *cuota social* and the guaranteed minimum pension (MPG).** The *cuota social* is a matching savings contribution by the government set at 5.5 percent of the minimum wage at the time the current system was put in place in 1997 and is indexed to the Mexican consumer price index. The MPG, set at one minimum wage in 1997 and adjusted for inflation, ensures a basic level of annuity for affiliated and eligible workers who earn less than 3 minimum wages.

16. **In practice, these benefits are difficult for the poor to obtain, however, because workers need to accumulate 25 years of employment in the formal sector to access social security benefits.** As is shown in the next section, low-income workers commonly move in and out of the formal sector during their working lives, making it difficult for them to accrue the necessary years of formal service. As a result, the risk of poverty among the elderly is high. Indeed, 41.8 percent of persons older than 65 years were poor in 2004, while 14.1 percent suffered from extreme poverty. Moreover, more than one-quarter of Mexicans age 60 or over have incomes below 50 percent of the nationwide median.

17. **In terms of health, over half of all Mexican households do not have health coverage through formal social security, though nearly all Mexicans have access to health services from the *Secretaría de Salud* (SSA); a relatively small, but rapidly increasing number of households are covered by *Seguro Popular*.** Forty-three percent of Mexican households have social security coverage through IMSS, ISSSTE or the other

formal social security institutions, according to 2004 household survey data.¹⁰⁸ In addition, approximately 3.4 percent of households (or roughly 890,000 families) were affiliated to *Seguro Popular* in 2004, according to the ENIGH data. As noted above, at present administrative data suggest that roughly 4 million households are now covered by the program.¹⁰⁹ Nevertheless, a significant majority of the poor still lack financial protection in health, whether in the form of health insurance via formal social security or through *Seguro Popular* (Figure 4).

Figure 4: Health Insurance Coverage via Formal Social Security and via *Seguro Popular* , 2004



Source: World Bank staff calculations, based on ENIGH 2004.

Notes: (1) A household is classified as “insured” here if at least one of its members is covered by any of social security schemes such as IMSS, ISSSTE, PEMEX, the Armed Forces, universities or private health insurance.

(2) The data indicate a very small level of overlap between being covered by health insurance via social security and being covered by *Seguro Popular*; less than one percent of households in all deciles report being both “insured” and also part of *Seguro Popular*.

18. The public health care system in Mexico, including both IMSS and SSA, remains based on supply-side benefits with no purchaser-provider separation or production-based provider payment system. Historical based budgeting remains prevalent and the resulting inefficiencies mean that improvements from programs such as *Seguro Popular* may be limited by supply constraints. There are few financial incentives to improve efficiency. Administrative expenses are high even by OECD standards and

¹⁰⁸ World Bank staff calculations based on the ENIGH survey, 2004.

¹⁰⁹ Different data sources provide somewhat different estimates of levels of participation in *Seguro Popular*. For example, administrative records reported that about 1.5 million families were affiliated to *Seguro Popular* at the end of 2004 as compared to a figure of about 890,000 indicated by the ENIGH 2004 household survey.

constrain the supply of needed inputs, such as pharmaceuticals and equipment (OECD 2004).

19. **The lack of modern contracting practices has resulted in a public health care delivery system that is highly fragmented and inefficient, with high production costs.** Indeed, the current structure of the system, which is vertically integrated (so that each sub-sector serves only a selected slice of the population), makes it impossible to achieve economies of scale or exploit comparative advantages afforded by different health care providers in the system. Alongside the public sector operates an unregulated private sector. Both the insured and the uninsured populations have commonly relied on the private sector for hospital care, for example, although data from 2000 indicates that (at least prior to introduction of *Seguro Popular*) the uninsured relied on the private sector more heavily than any other group.

20. **Indeed, inefficiencies in Mexico's health care system constrain supply, leading to a high-level of out-of-pocket spending, particularly among the poor.** Public funding accounted for 45 percent of health expenditures in Mexico in 2002, far less than the 75 percent share that is the average for OECD countries (OECD 2004). Furthermore, only 2 percent of households have private insurance. Hence, out-of-pocket direct expenditures on health services are high. Moreover, data indicates that households in the first income decile pay approximately 11 percent of their income on healthcare while the richest pay less than 4 percent.

21. **As a result of the high out-of-pocket expenditures, a large number of families are exposed to the risk of catastrophic or impoverishing health costs.**¹¹⁰ Of households with catastrophic or impoverishing health expenditures, more than 60 percent come from the bottom quintile, according to an SSA study cited in OECD (2004). Around 60 percent of rural households in Mexico fall below the poverty line when facing catastrophic health care expenditures, while only 17 percent of urban households face similar circumstances.¹¹¹ This measure likely underestimates differences in financial protection against the costs of health care since the poor may be more likely than the non-poor to forgo treatment when a given health event occurs. Indeed, the rich have a greater take-up of services than the poor for doctor visits, hospital admissions and lengths of stays after standardizing needs across income groups (OECD 2004). Insurance is a key factor in preventing impoverishment since, while only 9 percent of all insured households fall below the poverty line due to catastrophic health care expenditures, around 40 percent of the uninsured become impoverished when facing catastrophic health care expenditures.

22. **While evidence indicates that *Seguro Popular* has helped reduce catastrophic health costs among many poor, and led to higher utilization of the healthcare services (World Bank 2006), important challenges remain.** This includes increasing supply of the basic health services in poor areas (particularly in the most deprived

¹¹⁰ A recent study of consumption smoothing among households in rural Mexico found that among a variety of types of shocks, households had the greatest difficulty protecting themselves against the negative consumption effects of health shocks (Skoufias 2004).

¹¹¹ This estimate is based on the Threshold Plus definition. For details, see World Bank (2003).

municipalities), improving the targeting of *Seguro Popular*, and promoting greater accountability to improve the quality of the health services at the local level.

Social Protection in the Context of the Mexican Labor Market

23. **Recent emphasis on expanding assistance programs (e.g., *Seguro Popular*) for the poor reflects, in part, a concern by the Government of Mexico about the slow growth in the formal sector of the economy, along with a perception of a strong separation between the formal and informal sectors.** This approach is consistent with a long-standing view across Latin America that labor markets are highly segmented and that while workers would like to enter the formal sector, opportunities are limited and flows of workers between the formal and informal sector jobs is small. New evidence suggests that the Mexican labor market is more integrated than has traditionally been thought (Perry et al, forthcoming), and that other factors related to the nature of the Mexican labor market – and to the design of social protection itself – are relevant to people’s access to formal risk management instruments, such as health insurance and pensions.

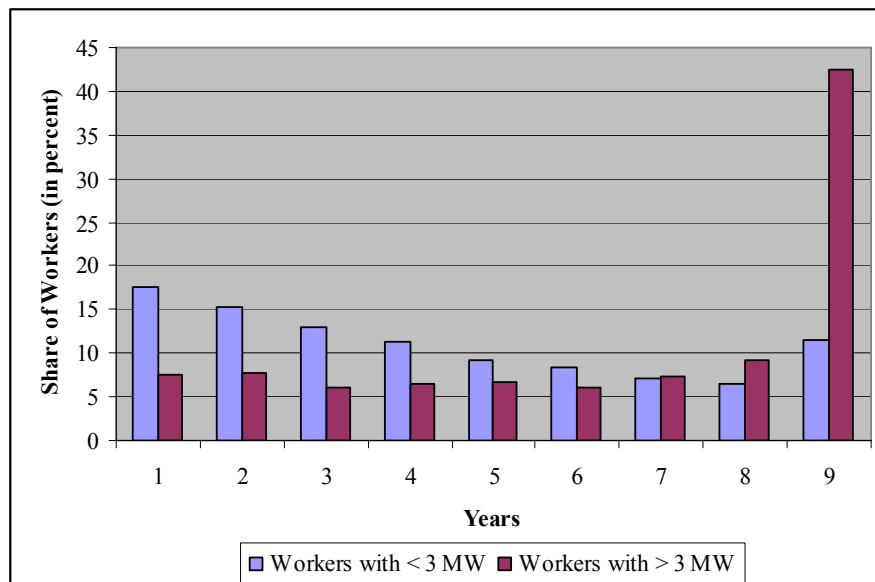
24. **In contrast to the traditional view of a segmented labor market, data indicate that there is considerable movement of individual workers in and out of the formal and informal sectors,** even over relatively short periods of time. Analysis of the 2005 National Urban Employment Survey (ENEU-2005) indicates that about 11 percent of high wage workers in the formal sector during the first quarter of 2005 (those earning over than 3 minimum wages) had moved to informal sector by the end of the year (Levy 2006). About 16 percent of low wage workers in the formal sector (those earning below 3 minimum wages) had moved into the informal sector from the beginning to the end of the year. Flows moved in the other direction as well. Roughly 11 percent of both low and high wage workers who were informal in the first quarter had moved into the formal sector by the end of 2005.¹¹²

25. **Overall, movement of workers is greater among low wage workers than among higher wage workers.** This can be seen from data on the duration of roughly 9 million IMSS workers in the formal sector between 1997 and 2005 (Figure 5). As can be seen from the figure, only 11.6 percent of low-wage IMSS affiliates spent the entire 9-year period in the IMSS system. Moreover, on average, low-wage workers spent just less than half of the period (4.3 years) in the system. In contrast, over 42 percent of the higher wage workers spent the full 9-year period in the system. Higher wage workers also spent a longer amount of time in the IMSS system over the period: 6.5 years, on average. It is worth noting, however, that while higher wage workers spent more than 2 years longer in the system than low-wage workers during the period, they still averaged roughly 2.5 years out of the system over the period.¹¹³

¹¹² For a detailed analysis of the informal sector in Mexico and elsewhere in Latin America and the Caribbean, see Perry et al (forthcoming).

¹¹³ These figures almost certainly understate mobility across the formal and informal sectors in the Mexican economy as the data do not capture rural workers. It is not uncommon for rural workers to migrate for work – and move in and out of formality – on a seasonal basis.

Figure 5: Distribution of Workers' Years Insured by IMSS, 1997-2005, for low and high wage workers in IMSS in 1997



Source: Adapted from Razu (2006) as presented in Levy (2006)

Note: Of the almost 9 million workers analyzed, nearly 6 million were “low-wage” workers, defined as earning less than 3 minimum wages, while roughly 3 million were “high-wage” workers, defined as earning more than 3 minimum wages.

26. **This mobility of labor has potentially important implications for workers’ access to benefits and, thus, the design of social protection.** For example, under current regulations, IMSS workers are required to accrue 25 years of work experience “in the system” in order to qualify for the Minimum Pension Guarantee (PMG). But if the years of IMSS affiliation implied in Figure 5 are representative, then it would take a low-wage worker roughly 50 years of work to qualify for the PMG. For all practical purposes, the PMG would be unattainable. Moreover, to the extent that the data reflect worker movement in and out of the system, this means that over any given time period, IMSS-affiliated workers – especially low wage workers – spend a considerable amount of time without access to IMSS health insurance. This suggests that under Mexico’s current social protection system, many workers may spend some time periods covered by IMSS and others covered by SSA programs, like *Seguro Popular*, representing significant inefficiencies in the system.

27. **Clearly not all Mexican workers face a choice between work in the formal and informal sector; nonetheless, given the high prevalence labor mobility, many Mexican workers may be making their employment choices based on an implicit calculation of the relative benefits and costs associated with accessing different services and risk management mechanisms.** For example, if the net benefits of affiliating with *Seguro Popular* (which, in practice, is free to most affiliates) are

considered greater than the net benefits of affiliating with IMSS (to which workers have to contribute, and which includes other non-health related costs and benefits) than the current, fragmented social protection system may itself be creating incentives for greater informal sector employment in Mexico.

28. **Other aspects of Mexico’s labor and social protection policy may also create incentives for informal rather than formal employment; for example, Mexico has one of Latin America’s highest levels of non-wage costs.** By law, both employers and employees contribute a percentage of their payroll to help finance workers’ benefits, such as health insurance, life insurance, housing programs, and old-age security. Employers’ contribution for housing programs, at 5 percent of payroll, is particularly high.¹¹⁴ Including costs such as vacation time and bonuses, total non-wage costs in Mexico amount to over 47 percent of payroll, the region’s second highest level, after Colombia, whose non-wage costs reach 53 percent of payroll (Santamaria and Lopez-Acevedo, 2004).

29. **Mexico also has high relatively hiring and firing costs.** Mexican Labor law has emphasized stability that has resulted in hiring modalities that treat any working relationship between an employer and employee as permanent. In this context, cross-country data suggest that Mexico’s labor market is more “rigid” than the average for Latin American and the OECD (Table 3). Mexico – together with Argentina – has the highest legally mandated notification period for redundancy procedures and the highest penalty in cases of dismissal without cause. The firing costs this entails stem from legal requirements related to very high severance payments and dismissal procedures. Moreover, litigation costs are estimated to be extremely high, as much as 50 percent greater than the severance payment established set by law.

Table 3: Cost of Labor in Mexico and other countries

Indicator	Mexico	Colombia	Latin America	OECD
Rigidity of Employment Index	38	27	31.7	33.3
Hiring cost (% of annual salary)	23.9	27.6	12.5	21.4
Firing costs (weeks of wages)	74.3	58.6	59.0	31.3

Note: Each index assigns values between 0 and 100, with higher values representing more rigid regulations. Source: Doing Business 2006

30. **In sum, labor market regulations, payroll taxes and contributions, along with the current design – and mix – of social protection programs creates considerable economic incentives for employers and employees to try to stay outside the formal sector (i.e., to evade). This has important implications not only for social protection coverage, but for economic productivity and growth in the Mexican economy.**

¹¹⁴ Some analysts argue that the housing contribution represents a pure tax on low wage workers who, given the nature of the Mexican housing market, are not able to access the housing benefit.

Key Policy Challenges

23. **The objective of public social protection policy is to provide *access to risk management instruments* to those who lack adequate access to household, community or market-based risk management mechanisms (especially the poor).** In this context, Mexico faces several key policy challenges in strengthening social protection for its people including: (i) increasing coverage, (ii) improving quality of services, (iii) strengthening the institutional framework governing social protection, (iv) assuring financial sustainability of the system, and (v) ensuring that the incentives created by the system are consistent with promoting better and formal sector jobs in the economy.

Coverage

24. **One key challenge is to assure adequate coverage of the population against key risks – especially against health shocks and poverty in old age.** The objective of a public social protection system is to ensure a country’s population with adequate access to risk management mechanisms. Nonetheless, less than half the Mexican population has access to financial protection in health either via formal social security or through *Seguro Popular*. Even a lower percentage of the population has access to pension benefits. And while coverage rates are low overall, the poor – who in general have the weakest ability to protect themselves via private risk management instruments (whether through personal asset holdings or through private insurance markets) – find themselves the most exposed to impoverishing health shocks and to poverty in old age.

Service Quality

25. **A second key challenge involves raising the quality of services afforded by the social protection system.** This includes quality of services as traditionally defined in the social sectors (e.g., the quality of health care provision available to the population, including the poor). But in the context of social security, it also pertains to perceived “value for money” for the package of benefits that affiliates pay for via their payroll taxes. Formal social security in Mexico includes not only health insurance and pension benefits, but disability insurance, work-risk insurance (or “workers’ compensation benefits), life insurance, day care centers for workers’ children, access to sports and cultural facilities, and housing credits. Yet, workers may not want or need every element of this package; nor, if quality of service is low, may they consider the benefits of some elements of the package worth what they are required to contribute for them out of their salaries. Indeed, it is argued that relatively low levels of social security coverage in Mexico and recent stagnation in coverage rates are due, in part, to low valuation of the benefits by workers of social security benefits (or specific elements of the benefits package) relative to what they must pay for them.

Institutional Framework

26. **A third key challenge involves strengthening the *institutional framework* for delivery of social protection,** including better integration of existing programs and

benefits under consistent sets of rules. At the moment, Mexico's social protection system is characterized by the fact that it is fragmented, with numerous institutions operating by different rules and providing different levels of benefits (even across the formal social security institutions, such as IMSS and ISSSTE) and with no portability across schemes. Different rules of the game across different institutions lead to inefficiencies and inequities in the system and contribute both to persistent coverage gaps and, in some cases, overlaps in coverage. Lack of portability compromises the protection of workers as they move across jobs and sectors and may impede workers' job mobility.¹¹⁵

Financial Sustainability

27. **A fourth key challenge involves assuring *financial sustainability* of the system, particularly with respect to the formal social security programs of IMSS and ISSSTE.** Federal transfers to the two major social security schemes – IMSS and ISSSTE – increased greatly since the mid-1990s and raise significant concerns about the financial sustainability of their programs. IMSS expenditure increases were related to the transitional costs of the 1997 IMSS reform as well as the costs of benefits to IMSS workers. Increased transfers to ISSSTE reflect the growing gap between pension payments and current contributions. Indeed, the operating deficit of ISSSTE grew more than two-and-a-half times between 2000 and 2005 alone. In 2005, ISSSTE's operating deficit represented 0.4 percent of GDP (compared to total spending on social security in 2003 equivalent to 2.1 percent of GDP).¹¹⁶ The combined contingent liabilities of IMSS and ISSSTE were equivalent of 82 percent of GDP in 2003. Moreover, the data suggests that these contingent liabilities have continued to increase over time. While different methodological approaches can lead to different results, one recent estimate put Mexico's contingent liabilities as high as 117 percent of GDP.¹¹⁷

Economic Incentives

28. **A fifth key challenge involves ensuring that the social protection system as a whole generates *incentives* that are consistent with promoting better and formal sector jobs, greater economic productivity, and sustainable poverty reduction.** Social protection in Mexico includes both a contributory system of social security for those working in the formal sector and a system of benefits provided without charge (or on a highly subsidized basis) to the poor. While the implementation of subsidized programs targeted to the poor represents an important and pragmatic approach to

¹¹⁵ This chapter was first written and discussed with counterparts in the Government of Mexico in November 2006. In March 2007, the Mexican Congress passed a reform of ISSSTE that broadly follows the features described in Chapter 2. An important objective of the ISSSTE reform is to enable portability of benefits across the ISSSTE and IMSS systems over time.

¹¹⁶ World Bank staff calculations based on data from "Anexo Estadístico del Sexto Informe de Gobierno del Presidente Vicente Fox, 2006."

¹¹⁷ An important goal of the recent ISSSTE reform is to improve the fiscal sustainability of the system. Analysis is currently being undertaken by a World Bank team to assess the expected impact of the reform in terms of sustainability.

improving the welfare of low-income families, the current array of contributory and non-contributory programs may generate adverse incentives to formal sector employment. Specifically, if those workers contemplating entering the formal sector feel they will not get “value for money” via their payroll contributions to social security and/or that they can receive higher benefits relative to costs through existing assistance programs, they prefer to work in the informal rather than in the formal sector. An important social protection challenge, therefore, is how the Government can extend social protection coverage of quality to uncovered families without creating significant disincentives to development of the formal sector economy.

29. **Clearly a number of factors – not just the design of social protection – affect labor market incentives and productivity; among the most important of these is the broader labor market regulatory environment itself.**¹¹⁸

Options for Strengthening Mexico’s Social Protection System

Strategic Choices: Pursuing a fragmented vs. a unified system of social protection

30. **Recent discussions with Mexican policy makers indicate that they share a common vision of achieving universal access to risk management mechanisms, particularly in health and old age security.** Indeed, in the medium-to-long-term, Mexico would benefit from a system that integrates all of its social insurance (health and pension) and social assistance (mainly, the array of transfers programs) – public and private, federal and state – in such a way that provides the desired level of coverage while providing an appropriate and consistent set of labor market economic incentives to workers and their families. Such a system would be equitable and provide basic protection to all citizens, taking into account their different circumstances and preferences. To facilitate the discussion of policy options, it is useful to identify two broad paths toward universal coverage in the long-term:

- *Strengthening of the current fragmented system*, or
- *Developing a unified system* of social protection over time.

31. **Examination of international evidence suggests that there is no single blueprint for social protection reform and that different credible approaches have been developed to expand coverage, improve efficiency, equity, and sustainability for the system.** Indeed, OECD countries followed different paths to more comprehensive coverage. Nonetheless, the evidence suggests that countries that created unified – or at least partially *integrated* – systems were more successful in expanding coverage and controlling fiscal costs than countries with fragmented systems. In more integrated systems, disincentives to formality and other economic distortions are also lower than in countries that lack unified or consistent sets of programs and regulations.

¹¹⁸ This suggests that while addressing the issue of incentives in social protection is important – even necessary – it will not by itself correct the distortions in the economic environment that lead workers (and firms) to operate in the informal rather than the formal sector.

32. **While developing an integrated system may be preferable in the long-term (more efficient, appropriate incentives), strengthening and extending the current fragmented system may be more feasible in the short-to-medium term.** Indeed, strengthening the current fragmented system is more amenable to undertaking incremental, step-by-step improvements in policy and program design, implementation, and management. Whereas pursuing an integrated system may pose important technical and political challenges, one possible approach to achieving such a system in the long-run could involve a series incremental reforms, designed to ensure that each short-to-medium term measure is consistent with (or at least not inconsistent with) the vision and architecture of a well-integrated system in the long-run.

33. **In the sections that follow, both options for strengthening Mexico's current fragmented system and for pursuing a unified system are explored.** Options for reforming old age security are presented first, followed by a discussion of options for improving social protection in health. It is important to note that while these two strategic paths represent different points on a continuum, they are not necessarily mutually exclusive. Among other things, a number of specific measures that would increase the efficiency of Mexico's health and pension systems are relevant in the context of either approach.

Options for Reforming Old-age Security

I. Strengthening the current fragmented system.

34. **One approach to strengthening and expanding access to old age security that has been used in a number of countries, including Brazil, Chile, and South Africa, involves development and implementation of a Targeted Social Assistance Pension (TSAP).** The approach is to make a non-contributory basic pension, paid from general taxes, available to all citizens, age 65 and older, who pass a means test (or a proxy-means test) and are categorized as poor. Eligibility would be based on need rather than on the nature of their labor contract during their working lives. One feasible starting point for such a program in Mexico would be to provide the TSAP to all elderly individuals who are currently registered in the *Oportunidades* program. Countries at all levels of economic development have implemented non-contributory components in their pension system. Moreover, evidence from several countries, including Brazil and South Africa, suggests that non-contributory pensions can be effective in reducing poverty among the elderly (see, for example, Barrientos 2003, Bertand, Mullainathan, and Miller 2003, and Duflo 2003).

35. **Targeting the Social Assistance Pension to the poor (and potentially to other vulnerable groups, such as the disabled) is important so as to minimize any disincentives of potential beneficiaries to formal sector employment.** Specifically, for some individuals, the subsidy associated with the TSAP may be more attractive than the subsidies in the formal sector pension system.¹¹⁹ So using a targeted approach is

¹¹⁹ In theory, for any risk neutral individual, informality will be preferred to formality if the expected subsidy obtained from the uncertain eligibility to the PMG and *Cuota Social* is smaller than the expected

essential to limiting the number of workers who face such incentives. Getting the targeting right, however, presents its own challenges. Indeed, discussions with staff from *Oportunidades*, a program whose targeting mechanism is well-developed, have indicated that updating its beneficiary register to include newly impoverished households and to remove those who have escaped poverty remains a major challenge.¹²⁰ Since many elderly individuals fall into extreme poverty only after they retire, it is important to devise ways to make the registration process flexible and agile enough to regularly incorporate newly eligible people.

36. Strengthening old-age security within the context of the fragmented social protection system would also require several types of measures to strengthen Mexico’s formal Social Security institutions (e.g., IMSS, ISSSTE). Such measures would aim at improving the efficiency, equity, and sustainability of the pension system, via efforts to: (i) make more consistent – i.e., “harmonize” – rules, eligibility criteria, and benefit levels across different programs and institutions – to help generate more appropriate and compatible incentives in the labor market; (ii) enable portability and transferability of benefits across employers and employment states – to help improve consistency of coverage and to strengthen the mobility of labor across jobs and sectors in response to changing economic circumstances; and (iii) ensure fiscal sustainability of the pension system. It could also include measures to facilitate greater savings among non-salaried workers through the AFORES (or a similar category of financial institution).

37. In the context of this broader (and perhaps longer-term) reform process, the current Chilean pension reform proposal represents a promising approach to building on an existing system that included both a contributory pension scheme and a targeted social assistance pension program. The proposed reform, which is now before the Chilean Congress, aims at creating an integrated system of old-age security for all Chileans, including the poor; and it does so in a way that balances the need for protection with that of maintaining appropriate labor market or savings incentives (Box 1).

II. Pursuing a unified, universal system.

38. Developing a unified, universal system of old age security would involve building on the concept of a Universal Minimum Pension, like the one that operates in New Zealand. The Universal Minimum Pension, and similar programs in other countries, aim at providing a minimum level of income support to all elderly on the basis of citizenship, rather than on the basis of their occupational choice or the nature of the labor market contract during their working lives. In other words, the right to old age security would be “de-linked” from the labor market and financed, at least partially, by general revenues.

subsidy obtained from the also uncertain TSAP eligibility. This is, however, only one element that enters into the decision of individuals and firms of operating in the formal or informal sectors.

¹²⁰ Personal communication during Bank staff’s mission to Mexico.

**Box 1: Moving from a Fragmented System towards Universal Old-age Security:
The Chilean Pension Reform Proposal**

In December 2006, the government of Chile sent to Congress a draft law to reform the pension system. The proposed reform contains a broad set of measures, including substitution of the existing targeted social assistance pension (PASIS) with a new solidarity pillar, extension of coverage to self-employed workers, development of norms to promote improved performance and supervision of the individual accounts pillar. The comprehensive reform proposal builds on the existing, multi-part system.

To prevent old-age poverty, the current Chilean social security system includes a minimum pension, as part of its contributory pension scheme, as well as a social assistance pension. The minimum pension is only available to individuals who have contributed at least for twenty years to individual accounts, however, and there is evidence that (as in Mexico) many workers will not achieve the required contribution history before retiring. At the same time, the social assistance pension is targeted to the poorest Chileans. There has, thus, been a concern that a significant share of the population might end up with very low or no pensions.

The proposed reform would create a new solidarity pillar that would provide benefits to those in the lowest 60 percent of income distribution who have either not contributed to the system or who have low contribution levels. Those who have not contributed would receive a pension of 75,000 pesos (roughly US \$142) per month. Those who have low contribution levels would receive a supplementary payment, the size of which would decline gradually as workers' retirement savings rise – until workers are able to self-finance a pension of 200,000 pesos (US \$380) or more per month. Above that, workers would receive no supplement. An interesting feature of the proposal is that, even for those receiving a supplement, higher personal retirement savings always results in higher total pension benefits. As such, such workers always face positive incentives to contribute to the system.

Participation of self-employed workers in the current pension system is voluntary in Chile, and only about 5 percent of the self-employed have chosen to participate. The proposed reform would extend the same program benefits to self-employed as to salaried workers, including the solidarity benefits. Over time, participation of self-employed workers would become mandatory, unless a person explicitly opts out. (It should be noted that since most self-employed workers in Chile are already registered and pay some taxes, the enforcement challenges associated with expanding pension coverage to this group of workers appear relatively less complex than elsewhere in Latin America.)

The reform also seeks to promote reductions in the commissions charged by the pension fund administrators and to increase the return of the investments. Commissions are currently considered high – attributed to the lack of sufficient competition. To address this, the Superintendent of Pensions would annually organize auctions of new affiliates based on commission levels; the administrator that offers the lowest commission would get the new affiliates. The administrator would be required to maintain the commission offered to new affiliates for at least 18 months, and to extend this rate to all affiliates. The reform also seeks to raise the return of the funds by providing more flexibility to choose the composition of the portfolio. With more flexible supervision, administrators would have more responsibility for the returns on its funds.

The pension system envisioned under the proposed Chilean reform represents a movement away from a fragmented system with separate savings and poverty prevention components. The proposal would strengthen and better integrate the assistance and redistributive components with the individual savings component of the system. It would improve the capacity of the pension system to protect the less fortunate, but without neglecting incentives. The result is a balanced reform that improves the existing system without disregarding the achievements made under previous reform efforts.

Source: Perry et al (forthcoming).

39. **A possible approach to ensuring that *all Mexican citizens* have a minimum level of income security in old age could be to redesign the Minimum Pension Guarantee (PMG) so that it is no longer conditional on mandatory contributions over a 25 year vesting period.** Rather, the current PMG could be transformed into a basic unfunded universal pension, de-linked from the labor market, and financed via general revenues. Since a key objective of the universal minimum pension would be to protect the elderly against poverty (or extreme poverty) in old age, whether or not they were poor during their prime working age, the level of the benefit could be calibrated to reflect the poverty (or extreme poverty) line, or some other agreed upon minimum acceptable living standard.¹²¹

40. **While a unified, universal system of pensions would have the benefit of ensuring old-age security to the entire population, such an approach faces potentially important challenges in Mexico, at least in the short-term.** Undertaking such reforms is likely to be very challenging politically, for example, since it would require not only a reform of the pension system, but an overhaul of Mexico’s labor legislation. Moreover, while the precise fiscal impact of such an approach would depend on the parameters of the system, as is shown below, movement toward a unified, universal system would entail greater fiscal impacts than a targeted social assistance pension (or even the type of partially subsidized system envisioned in the Chilean reform proposal).¹²²

Options for Social Protection Reform in Health

41. **As with old-age security, Mexico can pursue at least two paths toward the reform of social protection in health through: (i) strengthening the current (fragmented) system, or (ii) developing a unified, universal system of health coverage.** Regardless of the path chosen, the strength of the sector and its ability to deliver effective social protection in health would be enhanced by the implementation of a series of “micro-efficiency reforms”, which in any case should be part of a priority reform agenda for a more efficient and equitable health system. These issues are examined here, in turn.

I. Strengthening the current fragmented system.

42. **This option focuses on extending financial protection in health through expanding health coverage to currently uncovered groups, using the existing institutional framework and policy instruments.** For example, pursuing universal social protection in health through strengthening and expanding the current fragmented system could be based on the expansion of existing financial protection instruments in health, such as *Seguro Popular* (SP). This could be implemented either in the form of social assistance (i.e., fully subsidized, as it generally operates now) or with a graduated premium based on family income (i.e., as in the program’s design) and/or an expansion

¹²¹ Setting the minimum pension at half the minimum wage, for example, would establish the real benefit level approximately at Mexico’s official extreme poverty line.

¹²² Illustrative estimates of these costs are presented in the section on Fiscal Issues below.

of other existing financial protection instruments, for example, via a reformed program of *Seguro de Salud para la Familia* (SSF) from IMSS (with contribution levels set at levels that would be attractive to those outside the formal sector).

43. **The expansion of existing financial protection instruments is a process already in a relatively advanced stage of implementation that could, in principle, be continued until a basic package of health services is available to all Mexicans.** Indeed, *Seguro Popular* was designed as a subsidized insurance program to cover those working outside the formal sector, with premiums designed on a sliding scale – from zero for the poorest affiliates (e.g., those in the lowest deciles and/or on the *Oportunidades* cadastral list) to full cost recovery for the richest. However, implementing such a graduated subsidy scheme is difficult because at present it is impossible to observe with any precision the income levels of workers outside the formal sector. As a result, in practice, by late 2004, only 3 percent of all *Seguro Popular* affiliates were paying any premium at all.¹²³

44. **Other ideas have been raised in policy circles recently about possible vehicles for extending financial protection to specific priority groups in the context of strengthening Mexico’s fragmented system of social protection in health; specifically to provide universal health insurance to children less than five years of age.** Such ideas raise a number of important questions as to how best to provide coverage to such an important and potentially vulnerable demographic group (Box 2). Addressing these questions would be important for pursuing the important goal of protecting the health of young children while strengthening the broader social protection system.

¹²³ This information comes from a given to the World Bank team by the *Seguro Popular* administration (October 2004).

Box 2: Universal Health Insurance for Children under Five: A New Health Program for Mexico?

Recently, discussions in social policy circles have focused on a proposal to extend universal health insurance to Mexican children under 5 years of age. The goal of protecting the health of children under 5 is not only a desirable goal, but is necessary if a society wants to improve the health – and productivity – of future generations. It is important to consider how best this goal could be achieved. Indeed, it is pertinent to ask the following questions:

- What would be the best way to pursue this goal, given the present structure of the Mexican health system and the array of existing programs?
- Does the current health system offer the opportunity to achieve the proposed goal with no structural changes to it?
- Would the proposed scheme concentrate efforts specifically on children from poor families or be more broadly targeted?
- How would a new scheme interact with existing programs like *Seguro Popular* and *Oportunidades*?
- Would financing be separate from that of other programs?
- Would a defined set of interventions be proposed, say, along the lines of those included in the *Seguro Popular* benefit package? Or would supplementary interventions be required?
- Would the provision of health care services be contracted from public providers (SSA) exclusively, or would IMSS, ISSSTE and private sector providers be considered?
- And how would the program interface and interact with a decentralized health system?

Answering these questions will help to determine what type of policy intervention should be proposed and whether such an initiative ought to be self-standing or linked to an existing program. It is important to recognize that a new, self-standing program would generate new administrative costs. And it would be necessary to identify which children are not already covered by existing social protection in health schemes. An assessment of the relative costs and benefits of initiating a separate insurance program versus expanding child-related services through *Seguro Popular* (or other mechanisms) should thus be undertaken.

In any case, it will be important to closely monitor and evaluate the delivery of interventions already available – say through *Seguro Popular* and *Oportunidades*, etc. – with emphasis on care for children under 5 (and expectant mothers). Designing a comprehensive monitoring and evaluation strategy to accompany the enrollment and delivery of health care services to children under 5, could prove very effective, and provide valuable information on what types of other measures might be needed.

II. Pursuing a unified, universal system.

45. **Under a *unified* public system for universal health insurance coverage, all Mexicans would be entitled to a basic, defined packet of health services, independent of their labor market status and financed through general revenues.** Benefits would be de-linked from the labor contract and a basic, “minimum” package of health services would be available free of charge. This option is similar to the universal health systems pursued in several OECD countries, including the United Kingdom and Spain (Box 3). Under this option, Mexicans desiring a higher level of protection than that provided in the basic benefit package could purchase additional insurance from the private market. This means that while people would be assured of a basic package, they would not be limited to it; and, while it would guarantee greater equity under the public health system, it would not produce perfect equality of coverage across Mexican society.

**Box 3: De-linking Health Coverage from Employment Status
Spain's Shift to General Revenue Financing of Essential Social Insurance**

The health financing system in Spain underwent radical changes in the 1980s and 1990s. Spain shifted from a social insurance system financed by payroll-taxes to a national health service financed by general taxation. Today, almost 100 percent of public expenditures in health are financed from general taxation.

Spain's transition to democracy and the new constitution of 1978 gave new impetus to health care reform. A separate organization was established within the social security system for the administration of health care services. Most health care programs and organizations were consolidated under the umbrella of the Ministry of Health which was established as an independent entity in 1981.

In 1986 the General Health Care Act was approved following almost four years of public and parliamentary discussion. The act provided a unified legal framework for many of the previous piecemeal reforms and called for a tax-based financing system. Publicly managed health services were consolidated in a single national organization and in a small number of regional organizations (Cataluña and the Basque Country), within the framework of the newly decentralized state. The Spanish National Health System was subsequently devolved to the 17 Autonomous Communities that, since 2001, have fully managed their Regional Health Services and together make up the Spanish NHS.

Consistent with the reforms introduced by the General Health Care Act, the sources of funding for the health care system were drastically modified in 1989. Beginning in that year, new budgets were financed 70 percent from general taxation and only 30 percent from payroll-tax contributions.

In the mid-1990s, consistent with agreements signed by political parties and trade unions (known as the *Pactos de Toledo*), 100 percent of financing would come from general taxation and individual contributions were to be progressively phased out by 2000. In 1999, one year ahead of schedule, the entire health care budget in Spain was financed from general taxation. Today, Spanish Regions receive funding for health care as part of the general funding from central Government. Funding is proportional to population adjusted for such factors as age distribution, temporary residents, and services provided to the national system or to neighboring regions. Supplemental funding is also supplied from fiscal revenues raised in the region.

Currently, only workers' compensation for work-related injuries and diseases are financed from individual contributions of employers and employees.

Source: Baeza and Packard (2006)

III. Pursuing micro-efficiency reforms.

46. **Regardless of which option is chosen for expanding coverage, continuing and expanding micro-reforms in health – in IMSS, ISSSTE, and SSA – will be important to increasing quality and efficiency in the system.** Several types of reforms that are critical to improving efficiency in the health sector – including a separation of the insurer/purchaser and provider functions, movement to production-based vs. historically based budgeting and payment mechanisms, and reforms to reduce red-tape in the system – are discussed in turn, below.

47. **Separating the Insurer/Purchaser and Provider Function, both in the formal social security institutes (i.e., IMSS/ISSSTE) and in the public health system**

(SSA/Seguro Popular), is a critical step. This separation of functions is important because it creates the opportunity for the specialization of functions among purchaser and providers and eliminates perverse incentives associated with the different functions being combined into a single institution. Separating the insurance/purchasing and provision functions is necessary in order to establish binding contracts and to attain greater value for money. Separating the purchase and provider functions and establishing contracting arrangements would enable finances to “follow” the most efficient, highest quality service providers in any given setting – something that is not feasible currently given the set of vertically integrated health sub-systems.

48. **Another important improvement, both for IMSS and SSA (including Seguro Popular), involves shifting toward production-related provider payment mechanisms from current supply-side, historical financing.** Currently, the IMSS administrative framework severely restricts contracting for the provision of health services outside their own providers. Additionally, most of the provider payments for its own providers are input-based historical supply-side financing. SSA faces the same problems as IMSS in this regard. Both IMSS and SSA would significantly benefit from being able to purchase services outside their respective institutions to take advantage of potential lower price opportunities. Both would also benefit from shifting towards production-based provider payment mechanisms at a significant scale. IMSS unsuccessfully attempted these reforms in the 1990s. The impact of restrictions on purchasing services from non-IMSS providers, as well as the incentives determined by supply-side historical financing, is compounded by high and increasing costs of labor in IMSS, particularly of retirement benefits.

49. **Another way to increase efficiency within the health system, once a purchaser-provider separation and new budgeting/payment mechanisms have been achieved, involves providing patients with a choice of health care providers as part of their insurance arrangements.** This would create strong incentives for improved health care quality, as people would migrate from one provider to another based on providers ability to provide quality health services. Providing choice among public sector providers would represent an important first step. At the same time, given the importance of private sector provision, establishing strategies for effective public/private partnerships in the provision of health care would prove beneficial for the system as a whole. The establishment of solid accreditation systems along with quality monitoring systems would also help to ensure better health care service delivery.

50. **It is important to note that even under a reform approach that builds on the current fragmented system, the types of micro-efficiency reforms outlined here are by no means trivial.** Each of the activities mentioned here would need to be underpinned by detailed technical work and, in many cases, accompanied by legal changes as well. Implementation would require changes in the way that contracting is done within Mexico’s health institutions, along with important managerial and operational reforms. Cost accounting and corresponding information systems that are currently lacking would need to be put in place.

51. **If Mexico’s long-term goal is to move toward a unified, universal system of health coverage, then additional types of reforms would be necessary in the medium-term.** In general, for example, there are benefits from unifying the risk pool, either through a establishment of a single insurer or perhaps through establishment a “virtual single insurer” which accommodates multiple insurance institutions, but under an single and consistent set of insurance rules. This serves to broaden the risk pool and make the insurance function more efficient. Moreover, there would be benefits to harmonizing “the rules of the game” and benefit structures across IMSS and ISSSTE. This would help enhance both efficiency and equity within the system in the medium-term and could help to lay the ground work for eventual transformation of the fragmented system into a unified system, based on general, tax-based financing.

Establishing Appropriate Incentives

52. There are a number of factors that affect incentives in the labor market – including labor market regulations, distortions in the investment climate, and the design of social protection policies and programs – factors that can affect workers’ decisions to seek formal or informal employment. In this context, several elements of the design of social protection can help to minimize perverse labor market incentives that might be associated with efforts to expand access. These include:

- ***Un-bundling of benefits packages***, which would allow for individuals with different preferences, at different phases of their life-cycle, and/or at different income levels to select different elements of the social security benefits package on the basis of which services that they value and which they do not
- In the context of strengthening the fragmented social protection system, ***scaling of benefit packages*** appropriately across formal social security and social assistance programs can also serve to reduce incentives to de-formalization of the labor force
- ***De-linking of benefits*** from people’s labor market contract – a cornerstone of a unified, universal system of social protection, would eliminate distortions associated with the payroll tax and benefit system.

53. **Informality is related to the gap between the perceived value of benefits received and their costs.** The choice of formal versus informal employment status is made jointly by the worker and the firm. If the worker and the firm value the benefits of formality (i.e., avoidance of legal sanctions and/or access to formal-sector benefits such as health care, pensions, or vacation) less than the costs, the job will not offer and pay for formal-sector benefits.¹²⁴ Thus, when benefits provided by the social protection system cost workers and firms more than what they value them, the system creates incentives for informality. One reason some workers might not want to be formal is that they do not

¹²⁴ For workers for whom the minimum wage is binding, this calculus is biased toward informality: even if the worker values the benefits of formality more than its costs, the employer is not able to reduce his salary below the minimum in return for providing the formal-sector benefits that the workers values.

value one or more elements of the package; workers with no children may prefer not to pay for child care access, for example.¹²⁵

54. **Workers and firms also will favor informality if service quality is low given its costs.** If the quality of social protection services is perceived to be low relative to its cost, this may reduce a worker's willingness to pay for that service. In the case of health, for instance, workers might not value health insurance if healthcare facilities are far from their homes or workplaces (e.g., in the case of many rural workers) or if service is unpredictable, involves long waiting times, and is of low quality. Low service quality could also drive low risk/high income workers to avoid affiliating, which not only reduces participation in the system but hampers the effectiveness of insurance/risk pooling mechanisms. Similarly, in the case of housing, workers – especially low-income workers – may view contributing to housing credits as a pure tax if, for reasons related to the housing and/or mortgage markets, they do not believe they will be able to access those benefits in the future.

55. **Unbundling of benefits packages allows for individuals to be able to purchase the services and protections they value most.** If some workers value some aspects of the formal social protection system more than their costs, but not others, then these workers could access – and pay for – only the components they desired. Thus, unbundling would make formality less costly. It could lead to increased participation by some individuals who are completely uncovered today as they would be able to access selectively the components of the social protection system they value most. It could also spur different components of the social protection system to improve service quality and the level of protection against risk, since each component on its own would have to offer workers a service that they value at more than the cost required to access it. Thus, for example, with unbundling, workers could participate in the AFORE defined-contribution system, in which benefits are closely tied to contributions, without participating in other areas of the social protection system in which they continue to perceive a gap between benefits and costs.

56. **Unbundling of benefits packages could be partial or complete depending on Mexico's social protection priorities and the overall design of the system.** As noted above, the current social security package has eight components: (i) health insurance, (ii) retirement pensions, (iii) disability insurance, (iv) work-risk insurance, (v) life insurance, (vi) day care centers for workers, (vii) sports and cultural facilities, and (viii) housing credits. While some workers may value all elements of this package, it is arguable that sports and cultural facilities are not an essential element of risk pooling or risk management, and could therefore be made elective. Workers could have the option to purchase access to those facilities and would do so if they value the service. Similarly, while many would value day care facilities or housing credits, there is no strong argument for compelling people to “purchase” that service if they don't plan to use it.

57. **Arguments for unbundling are relatively complex in the case of health insurance and pensions; at least in the absence of unified, universal systems of**

¹²⁵ Conversely, single mothers may value access to child care services very highly.

health and old age security, complete unbundling of these benefits should be pursued with caution. In the case of health insurance a mandate may be important to ensure as large as possible a risk pool and to protect against adverse selection (high health risks contribute; low health risks don't). Moreover, the lack of risk pooling in health can impose social as well as private costs (Baeza and Packard 2006). In the case of pensions, the literature raises concerns about workers failing to save for old age due to "myopia". To the extent this is the case, there is a public policy rationale for maintaining a mandatory pension contribution, unless or until there exists a universal minimum (non-contributory) pension.

58. **In the context of a fragmented social protection system, *scaling of benefits across non-contributory and contributory programs can help to minimize adverse labor market incentives.*** If benefits associated with social assistance or non-contributory programs are too high relative to those associated with contributory programs, this can create disincentives to formal employment. Particularly in contexts in which workers do not consider contributory programs "good value for money," relatively generous benefits among non-contributory programs can affect workers' calculations regarding whether or not to work in the formal sector. A direct approach to scaling program benefits is to set benefit levels in non-contributory programs at sufficiently low levels so as not to create strong incentives for de-formalization. At the same time, care needs to be taken to assure that benefit levels are not so low as to undermine the welfare enhancing effect of the intervention (e.g., a targeted social assistance pension that is so small that it is not sufficient to raise elderly poor out of poverty). Another, indirect way, of scaling benefits is through measures to improve quality of services in the relevant contributory programs. Indeed, increasing "value for money" within contributory programs is a potentially important force for strengthening incentives for workers to prefer formal sector jobs.

59. ***De-linking social protection benefits from labor contracts – and financing them through general revenues – is one way to reduce distortions associated with the payroll tax and benefit system and, thus, create more neutral incentives for individuals' labor market choices.*** Access to basic health care and to a minimum old age income would be related to people being citizens, rather than workers (or family members of workers) in the formal sector. De-linking social protection means that all Mexican citizens would have access to the same, unified system regardless of their labor market status. Other costs related to formal employment, such as hiring and firing rigidities (but unrelated to social protection) would not be a barrier to access, and would not limit the coverage of the social protection system.

60. **With a de-linked system, rather than relying on payroll taxes (which may be very hard to enforce), fiscal sustainability would be based on general revenues, say, via consumption, income or property taxes.** General taxation is not the only alternative, but it is potentially the most equitable and efficient, with potentially positive effects on employment. Depending on the progressiveness of a country's taxation and subsidy allocation systems, it is the most equitable. Of all the sources of promoting equity, general taxation entails the lowest transaction costs for a given level of risk-pool fragmentation, as the whole society becomes a single pool for this purpose. Moving to

general taxation could also have a positive impact on labor demand – as the distortions that are generated by labor taxes are removed. This could increase formal job creation and efficiency.

61. **Indeed, there is an important trend in OECD countries toward de-linking and financing through general taxes.** Countries with long traditions of social insurance systems linked to the labor contract are moving towards general tax financing of risk-pooling (for example, Italy, France and Spain). And several OECD countries already have strong universal general-tax-financed systems (e.g. Sweden, United Kingdom, New Zealand). Even in Germany, recent reforms are moving health finance systems towards general taxation.

62. **The design of social protection is only one of the many factors affecting incentives for labor market participation in the formal versus the informal sector, however.** Rigidities in the labor market still have significant distortionary effects and create adverse incentives that effect growth of formal employment as well as labor productivity. In this context, broader labor market reforms that reduce unnecessary rigidities, for example, reducing the costs of hiring and firing, can go far toward better aligning incentives with labor market participation. Changes in overall labor market legislation that can facilitate the creation of more formal sector jobs may have larger effect than specific policies or programs aimed at employment generation or at reducing directly the labor costs of specific groups.¹²⁶ An example of international experience with respect to wage subsidies is presented in Box 4.

Box 4: Wage Subsidies as Social Protection: Lessons from International Experience

Recently, there have been discussions in Mexican policy circles about the potential value of implementing a wage subsidy program to support young workers in obtaining jobs in the formal sector. The objective of wage subsidies is to encourage employers to hire new workers or to maintain jobs that would otherwise be terminated. They frequently target the long-term unemployed and disadvantaged individuals, and can take the form of direct subsidies to employers or financial incentives to workers for a limited time. Wage subsidies can be applied to all employment, to net changes in employment (a marginal or incremental employment subsidy), or to gross flows into employment arising from new hires or layoffs.

Wage subsidy programs have been implemented in several different countries in Latin American – including Argentina, Brazil, and Colombia – as well as in Europe and the United States. Review of recent evaluations of such programs suggests that wage subsidies are unlikely to have a positive impact either on earnings or on employment. Even when designed carefully and funded generously, wage subsidy programs may not benefit participants. Evidence indicates that these programs are not likely to have a positive impact because they cause deadweight losses, displacement effects, and substitution effects.¹²⁷ In some cases, wage and employment outcomes of participants have even been found to be negative, compared to relevant control groups.

¹²⁶ For a more detailed discussion on this issue, see Chapter 7 of this report.

¹²⁷ *Deadweight Loss*: While the program entails costs, outcomes are no different from what would have occurred without the program. *Displacement Effect*: A firm with subsidized workers increases its output but the increased output displaces production by firms without subsidized workers. *Substitution Effect*: A worker hired in a subsidized job is substituted for an unsubsidized worker who otherwise would have been hired

Careful targeting can reduce, but not eliminate, substitution and deadweight loss effects, and further controls may be necessary to ensure that firms do not misuse the program. Indeed, evidence suggests that employers may refuse to hire the unemployed unless they receive a large subsidy and, in effect, use the program as a permanent subsidy to the workforce. Monitoring of employer behavior is thus necessary.

In the United States, wage subsidies programs have been used to improve the earnings prospects of program participants rather than reducing unemployment. However, neither the US Targeted Job Tax Credit program nor the US Job Training Partnership Act (JTPA) were found to have significant effects on employment levels *or* earnings prospects for young workers; while cost-benefit analysis of the JTPA was found to be positive for older workers, it was found to be negative for youth.

In Europe, a large share of countries' budgets is often spent on labor market interventions, such as wage subsidies programs, to mitigate unemployment among specific target groups. Virtually all studies that evaluate private sector wage subsidy programs find beneficial impacts on individual employment probability. However, some of the wage subsidy programs that report positive results on labor market outcomes included other elements besides wage subsidies (e.g. job search or training). These studies do not isolate the effects of these other elements, however, making it impossible to determine the impact of wage subsidies alone.

In Latin America, evidence finding positive impacts of wage subsidies programs is scarce. The Argentina *Proempleo* program reported a 14 percent increase in private-sector employment compared to 9 percent for the control group, but with no positive effect on earnings. The Colombian *Programa de Apoyo Directo al Empleo* had many implementation problems and was canceled in its first year. Subsidy levels were considered by many firms as too low to warrant participating. Moreover, the requirement that firms be up-to-date with their fiscal and legal social welfare obligations deterred many firms from registering.

If Mexico chooses to go forward with a wage subsidy program, it would be important to evaluate its impact, so that policy makers can understand whether or not it is effective in obtaining the desired objectives.

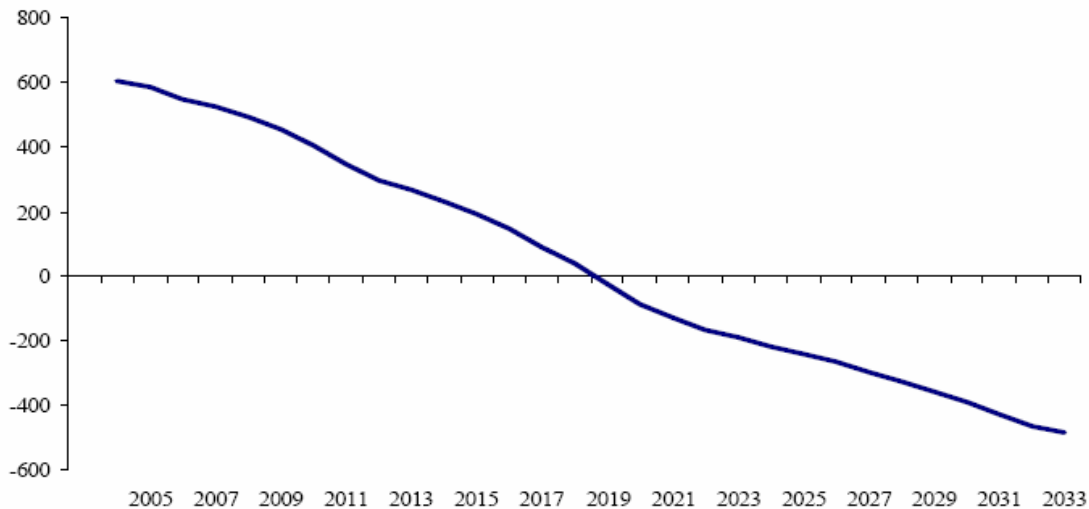
Fiscal Issues

Sustainability of Social Protection

63. **As noted above, federal transfers to the two major social security schemes – IMSS and ISSSTE – have increased greatly since the mid-1990, raising significant concerns about the sustainability of their programs.** IMSS expenditure increases were related to the transitional costs of the 1997 IMSS reform as well as the costs of benefits to IMSS workers, while increased transfers to ISSSTE reflect the growing gap between pension payments and current contributions. The combined contingent liabilities of IMSS and ISSSTE were the equivalent of 82 percent of GNP in 2003. Moreover, in the absence of reforms, Mexico's contingent liabilities continue to grow – to over 100 percent of GDP by some estimates.

64. **The increasing urgency of addressing fiscal sustainability can be seen clearly in recent data from IMSS.** In the absence of decisive action, paying the generous pensions provided to IMSS's workers will require reductions in spending on health infrastructure, medicines, and other inputs critical to providing adequate health coverage and ensuring adequate health outcomes. According to IMSS's own analysis, by 2018, the amount of money available for health spending per *derechohabiente*, after subtracting own-worker pension costs, payroll costs and economic benefits, will have declined to zero (Figure 6).

Figure 6: Funds for health expenditure per *derechohabiente* of IMSS available after costs of own-worker pension system, payroll and guaranteed economic benefits



Source: IMSS, 2004.

65. Ensuring fiscal sustainability of IMSS and ISSSTE is thus a pre-requisite to effective long-term social protection reform, regardless of the particular strategy and options chosen.

The Potential Costs of Reform: Some illustrative estimates

66. While the reform is IMSS and ISSSTE will ultimately realize budgetary savings, commitment to extending social protection to currently uncovered groups will require commitment of additional budgetary resources. The amounts required and the appropriate revenue source will depend on the specific options chosen and on whether reforms strengthen the current fragmented system or pursue an integrated system that is de-linked from the labor contract (i.e., financed by general revenues).

67. Estimating the precise fiscal impact of social protection reform is difficult, as the estimates are sensitive to changes in assumptions. For example, estimating the expected costs of extending health coverage to uncovered populations is difficult, as there are important trade-offs between the size of the benefit package and breadth of coverage. In addition, although there are potential fiscal savings associated with micro-efficiency reforms in the health sector, it is possible that such efficiency gains could be offset by the types of cost escalation that has been seen in health systems in the US and the OECD. How these forces work to counteract each other is difficult to determine. In that sense, the figures presented in this section should be thought of as illustrative, attempting to capture general orders of magnitude.

68. **Analysis suggests that the incremental costs of a Targeted Social Assistance Pension (TSAP) to the elderly equivalent to half the minimum wage, if implemented immediately, would be on the order of 0.3 percent of GDP per year between now and 2010, rising to about 0.7 percent of GDP in 2050.** These estimates are based on the assumption that the social assistance pension would be targeted strictly to the poor and on standard demographic projections. It is worth noting that these estimates are generally consistent with recent projections from other sources (e.g., Scott, 2006).

69. **As expected, estimates of the potential fiscal costs of pursuing a universal minimum pension option are higher. Indeed, estimates suggest that the incremental annual budgetary costs of establishing a universal minimum pension income of half the minimum wage and expanding the *cuota social* to the entire working-age population would be 1.3 percent of GDP between now and 2020, rising to about 1.7 percent of GDP in 2050.**¹²⁸

70. **With respect to health reforms, recent estimates suggest that providing basic coverage to all Mexicans require additional revenues ranging from roughly about 1.4 to 2.7 percent of GDP, depending on the approach taken, and accounting for possible gains from micro-efficiency reforms in the health sector.** More specifically, it is estimated that the additional cost of *extending Seguro Popular* to all uninsured would range from 1.4% to 1.6% of GDP per year, depending on the extent of subsidization of the package and the ability and willingness of the government to implement a graduated insurance premium over time to non-poor households.¹²⁹ These estimates are reasonably consistent with, although slightly higher than, earlier projections of the possible additional fiscal costs of providing basic health coverage to the uninsured through some combination of *Seguro Popular* and IMSS's *Seguro de Salud para la Familia* (World Bank 2003). Estimates suggest that the additional costs of *providing a universal minimum health package, de-linked from labor market participation*, could be on the order of 2.7% of GDP.¹³⁰

Fiscal Space for Social Protection Reform: Where does Mexico stand?

71. **Analysis of cross-country data indicates that tax revenue collection in Mexico is low compared to OECD countries and compared to countries with similar levels of per capita income outside Latin America** (e.g., in East Asia; see Figure 7). From the perspective of strengthening social protection, the relatively low levels of revenue collection present an important challenge; tax intake in Mexico remains considerably

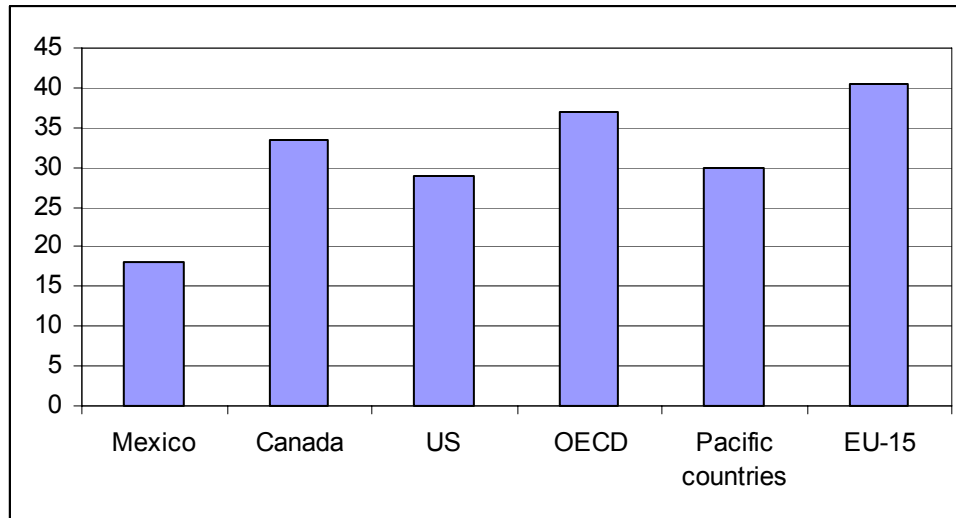
¹²⁸ While not strictly comparable to these calculations, it is estimated that the additional fiscal costs of the Chilean pension reform would be about 1 percent of GDP per year (Government of Chile as cited in Perry et al, forthcoming).

¹²⁹ These estimates assume real 2004 unit costs associated with *Seguro Popular*.

¹³⁰ The unit cost of the universal minimum health package is assumed to be over 40 percent higher than the value of the unit cost of the *Seguro Popular*, after accounting for efficiency gains associated with micro-efficiency reforms in health. These estimates assume that wealthier households are free to purchase supplementary health insurance in the private market according to their preferences and willingness to pay.

lower than in countries in Europe and elsewhere that implement universal pension programs.¹³¹

Figure 7: General Government Tax Revenue in OECD Countries (% GDP, 2002)



72. **Measures to strengthen Mexico’s tax system – improving the tax administration and fostering compliance – will thus be crucial to any sustainable efforts to strengthen and expand old age security and social protection in health.** Reforming the tax system is also critical to ensuring medium-term fiscal sustainability. While political consensus for reforms in the past has been limited in Mexico, the reform of the social protection system provides a window of opportunity to introduce the needed changes in the revenue collection system by publicly redefining the social contract.

Conclusion: Crafting a short-to-medium term reform agenda

73. **The Mexican system of social protection closely mirrors the fragmented systems found in much of Latin America, in which the main sources of protection are linked to the form of one’s participation in the labor market.** It embodies a social contract that remains unfulfilled, in which large groups of the population are not covered by formal sector institutions and lack adequate access to risk management mechanisms, especially protection against health shocks and poverty in old age. Traditionally, the wealthiest segments of the Mexican population have had access to formal social security. More recently, including during the last *sexenio*, the poor have benefited from greater access to social assistance programs as well as to financial protection in health. Nonetheless, the data indicate that there remain significant gaps in protection in health

¹³¹ Tax intake levels in Germany exceed 25 percent of GDP, while levels in Denmark, France, New Zealand, United Kingdom, and Sweden – all countries which implement universal pension programs – exceed 30 percent of GDP.

and in old age security. Gaps in the safety net are present at all levels of the income distribution – but they remain greatest among the poor.

74. **Against this background, there is a growing consensus among policymakers in Mexico of the value of assuring all citizens access to adequate risk management mechanisms in the long-term – in particular, an adequate level of financial protection in health and at least a minimum level of income security in old age.** There is also a shared appreciation of the need for increasing efficiency of the current social protection system, of assuring its financial sustainability, and improving the quality of the basic services currently received by Mexicans across the income distribution.

75. Moving forward, the Government of Mexico faces important strategic choices about the future and direction of social protection: in particular, the extent to which efforts should focus on strengthening the current fragmented system or on moving toward a more integrated, even unified system of universal social protection.¹³² **In this context, an important first step for the incoming administration will be to clarify and articulate a long-term vision and strategy for social protection, and to begin to build consensus around it.** Because social protection is multi-sectoral and multi-institutional by nature, efforts to develop a strategy for social protection will benefit greatly from efforts by the incoming team to forge a broad consensus on the long-term vision.

76. Pursuing a long-term vision and strategy for social protection in Mexico will likely entail implementation of a series of discrete measures, rather than a “big bang” type of reform. This may be particularly pragmatic given that the needed reforms require the support of a diverse set of institutional and political actors. In this context, it will be important to ensure that any short-term measures are consistent with (or at least not inconsistent with) the Government’s long-term vision and agenda. This will be especially important if the Government chooses to pursue a more integrated system that aligns social objectives of better risk management with economic objectives of higher productivity and growth.

77. Regardless of its strategic choices for social protection, there are several sets of actions that the incoming administration could take in the short-to-medium term that would contribute in important ways to Mexico meeting its long-term goals of extending social protection in health protection and old age security to all its citizens. Moreover, these steps will be important to address – and are consistent with long-term progress – regardless of the strategic path the incoming administration chooses to pursue.

- First, it will be important for the new government to address the longstanding issue of *ensuring fiscal sustainability* of the main institutions of the social security system, IMSS and ISSSTE (and thus the social protection system as a

¹³² The same strategic choice need not be made for both health and old-age security. A forthcoming World Bank study on informality in Latin America and the Caribbean (Perry et al) argues, for example, that while a unified, universal approach is warranted in the case of health, a more particular approach, along the lines of a targeted social assistance pension or the Chilean reform model, is more appropriate in the case of old age security.

whole).¹³³ In many ways, dealing with the issue of sustainability is a pre-requisite for long-term and sustainable progress in all other areas.

- Second, it will be important for the government to *pursue micro-efficiency improvements in the health sector*. Indeed, efforts to separate the insurer/purchaser and provider function, moving to production-based budgeting and strategic purchasing, increasing choice of providers will all play an important role improving the efficiency and impact of Mexico's system of social protection in health in the long-run.
- Third, it will be important to initiate efforts to *strengthen the consistency and incentive compatibility of programs, structures and benefits across Mexico's social protection system*. This would include efforts to “harmonize” rules, eligibility requirements, and benefits levels across programs and institutions – both in health and in old age security. It would also include efforts to promote portability and transferability of benefits across jobs and sectors of employment. It is clear that a number of factors affect incentives and outcomes in Mexico's economy, including labor regulations and the broader investment climate. Nonetheless, these measures will be important to establishing a social protection system that is well-aligned with a more productive and mobile labor force as well as with sustained growth and poverty reduction in Mexico. Efforts to reduce the high costs associated with current labor market regulations will also go far to establishing appropriate incentives for a productive and well-protected population.

78. **Commitment to pursuing a social protection system that provides basic social protection in health and old-age security to all Mexican in the long-term will have fiscal implications for the government.** In this context, it is important to note that the short-to-medium term actions highlighted here –particularly pursuing fiscal sustainability of social security institutions and micro-efficiency reforms in health– should generate fiscal savings that could be applied to providing to broader social protection coverage to those Mexicans (and particularly the poor) who remain uncovered.

79. **In the longer-term, however, pursuing an agenda of social protection against health shocks and poverty in old age for all Mexican citizens will require a commitment of additional fiscal resources which, in turn, may require a new “social contract.”** Indeed, a long-term vision and commitment to universal social protection coverage may engender the need for a broad re-thinking of the role of the state in that process and how such protection is going to be financed. Indeed, adopting a bold and inclusive vision for social policy in Mexico may provide an opening for revenue enhancing measures to finance that vision.

¹³³ The March, 2007, ISSSTE reform appears to be an important step in this direction.

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Annex 1

Non-Social Security Programs that Provide Benefits to the Elderly in Mexico

Elderly persons who lack a formal pension do, in principle, have access to a several social assistance programs that may provide some support. These programs were not designed in an integrated way to ensure a minimum level of income for the elderly, but in practice they do constitute some measure of a social safety net for the elderly. Federal-level programs include both those with a specific income-support design, such as *Oportunidades*, as well as nominally production-oriented programs that benefit the elderly, such as *Procampo* (Table A.1). In addition, there are state-level programs that benefit the elderly, such as minimum-pension programs in the Federal District, Guanajuato, Nuevo León, Guerrero, Estado de Mexico and Michoacán (Table A.2). While coverage of these programs, combined, is not trivial, it remains limited relative to the uncovered elderly population. Moreover, coverage is ad hoc, based on the origin program criteria and not on a systematic approach to providing old age security to the elderly (or elderly poor).

Table A.1: Federal programs that provide protection to the elderly poor

Program	Agency	Year	Elderly Beneficiaries	Definition of Elderly	Amount of Support	Description
PROCAMPO	SAGARPA	2004	554,189	Ages 65 and over	1120 MxP per Ha for the first semester	Procampo is an agricultural production subsidy given to the user, not the owner, of the land. It is seasonal, such that double cropping farmers receive it twice a year.
OPORTUNIDADES	OPORTUNIDADES/SEDESOL	2004	948,352	Ages 70 and over		Oportunidades is Mexico's flagship conditional cash transfer program. There are 753,047 households that benefit from Oportunidades and that also include at least one person age 70 or older. 593,196 of these households receive support because the elderly person is the head of the household and in charge of children. The remaining households include elderly who are not in charge of children but who receive the support conditional on health checks.
Acuerdo Nacional para el Campo: Atención a Adultos Mayores en Zonas Rurales	SEDESOL	2003	211,307	Ages 60 and over	2,100 MxP annually	The objective of this program, formally launched in 2004, is to improve living conditions of elderly adults over 60 years old in situation of extreme poverty in rural disperse areas (less than 2,500 people) in high and very high marginal communities. One requirement is that beneficiaries do not participate in any other similar program.
		2004	109,542 up to August, but enrollment may have increased up to 714,000	Ages 60 and over	2,100 MxP annually	
LICONSA	SEDESOL	2003	411,217	Ages 60 and over	Buy milk at 3.50 MxP per liter	This program was created to improve the nutrition of the poorest families, including the elderly poor. Beneficiary households are required to attend nutrition talks and participate in housing and community improvement actions.
Programa Alimentario	DICONSA/SEDESOL	Information not available at time of Policy Note distribution.			Nutritional package with a value of 150 MxP that the household receives monthly	Poor households living in rural marginal areas that do not receive support from other programs like Oportunidades and LICONSA

Source: Compiled by World Bank staff.

Table A.2: State-level programs that provide protection to the elderly poor

Program	State	Year	Beneficiaries	Definition of Elderly	Amount of Support	Description
Programa de Apoyos Directos al Adulto Mayor	Nuevo León	2004	26,919	Ages 70 and over	500 MxP monthly	Targeted income support provided via debt cards in urban areas or electronic <i>vales</i> in rural areas.
Programa de Atención a Adultos Mayores	Sonora	2004	43,000	Ages 65 and over	225 MxP monthly	Targeted income support to be used for payment of heating bills during winter and electric bills during summer.
Pensión para adultos mayores	Distrito Federal	2002	328,000 (98% of the elderly in Mexico City)	Ages 70 and over	800 MxP monthly	Initially, a cash transfer meant to cover food expenses of the elderly, it is now an unconditional cash transfer.
Programa de Atención Integral para Adultos Mayores	Hidalgo	2004	1,200	Information not available at time of Policy Note distribution	40 MxP per day for six months	Conditionally on attending a social assistance center providing nutrition, medical supervision, job training and cultural activities, participants receive 40 MxP per day for up to six months.
Atención a los Adultos Mayores	Michoacán	2004	82,000	Ages 65 and over	A monthly food basket	A targeted program that also includes cultural activities.
Programa Pensión Guerrero	Guerrero	2004	25,000	Ages 65 and over	400 MxP	A targeted conditional cash transfer program.

Source: Compiled by World Bank staff.

Chapter 5: DEVELOPING AN INNOVATION POLICY TO ACCELERATE MEXICO'S GROWTH

Jose Luis Guasch and Esperanza Lasagabaster¹³⁴

Innovation must take a central place in Mexico's growth policy debate as its future economic growth will increasingly be affected by its capacity to generate and use knowledge. Mexico's innovation system performs below par compared with economies of similar income levels and is characterized by low investment in R&D; a low science and technology (S&T) skills base; very modest private sector involvement; insufficient linkages between public research centers and the productive sector; difficulty in translating knowledge into innovation; and a high regional concentration of S&T activities.

A number of initiatives were launched over the 2001-2006 period to address these gaps, however, a long-run strategy is needed focusing on: (i) increasing funding at all levels of government in a well coordinated manner; (ii) placing private sector innovation at the heart of the agenda; (iii) ensuring wider regional coverage of S&T activities; (iv) actively promoting national and international linkages; (v) continuing to build the S&T skills base; and (vi) evaluating the impact of programs to ensure that resources are used in an effective manner.

The agricultural innovation agenda merits special attention as it faces fierce domestic and international competition, lags behind regional competitors in productivity and growth, and has an increasing net agricultural trade deficit with the United States. This policy note recommends increasing public investment in agricultural research to adapt foreign technologies and develop new technologies suitable to the conditions of Mexican endowments; developing an effective system for technology and information diffusion with special training support for "ejidatarios" and agribusiness owners; and re-training of displaced agricultural labor.

I. A PUSH FOR INNOVATION

A. Innovation: Key to Economic Growth

30. **Mexico's economic growth will need to accelerate over the coming two decades in order to generate jobs, enhance social indicators, and attain a significant reduction in poverty rates.** During the period 1996-2005, Mexico achieved a moderate average growth of 2 percent per year in per capita incomes, even with the benefits of integration into the North American Free Trade Agreement. Growth, however, was

¹³⁴ The authors are grateful to comments received by Andreas Blom, Jose Maria Caballero, David Rosenblatt, and Anna Wellenstein.

mainly driven by an expansion of the labor force and capital accumulation with modest total factor productivity gains (TFP). The agricultural sector, in particular, which still employs a significant share of the population, has been lagging since the 1980s.

31. **Moreover, competitive pressures are rising.** From 2000 to 2002, the *maquila* sector shrunk as the US economic growth rate declined and firms relocated to other countries. In 2003, China surpassed Mexico as the United States' second largest trading partner after Canada. The Mexican economy faces numerous challenges ahead with a slowdown in export growth, migration of firms, decline in foreign direct investment, and limited industrial production with high value added. The World Economic Forum's 2005-2006 Global Competitiveness Report gives Mexico a rank of 55 out of 117 countries in its Growth Competitiveness Index, down from 48th place in 2004 and a 34th in 1998 (shortly after the crisis). Deepening efforts to improve Mexico's competitiveness in general, and its innovation capacity in particular, are critical to its future economic growth. Mexico can no longer compete on low-wage jobs and low value added products. The threats posed to the Jalisco electronics center, once known as the Latin American "Silicon Valley", and the opportunities to transform itself into a new software development center are illustrative of the challenges and opportunities that Mexico faces (Box 1).

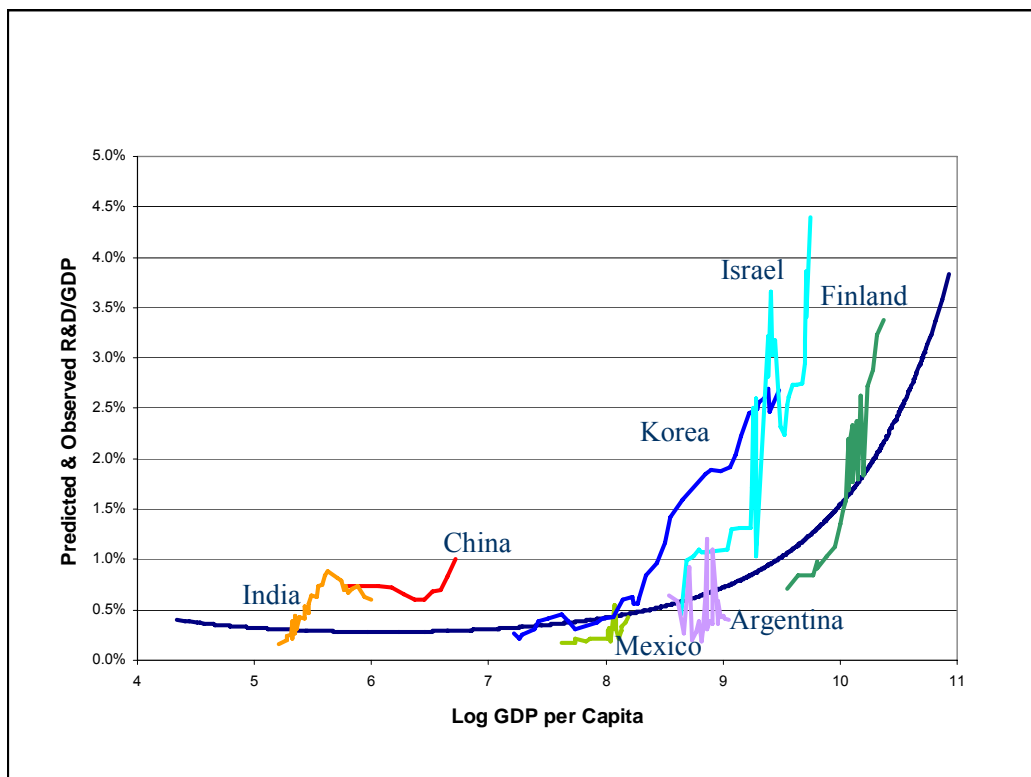
Box 1. Jalisco Electronics: A Cluster under Threat

In the early 2000s, Jalisco accounted for approximately 35 percent of production for the largest contract electronic manufactures. Many large multinational companies had a presence in Jalisco including IBM, Hewlett-Packard, NEC, Motorola, Intel, Siemens, Flextronics, Jabil Circuits, and USI. More recently, some multinational firms such as IBM and Motorola and many smaller ones have closed their facilities to move them to Asia, in particular China. The main reasons motivating this change are lower labor costs, access to the global market (not only the North American market), and the presence of dynamic suppliers in Asia.

In spite of the emerging threat, the region has a significant concentration of knowledge and skills in the electronics industry. The state government together with local organizations is trying to use this talent and transform the low value added assembly jobs into higher value added software development jobs. A successful transformation would lead to better paying jobs.

32. **Innovation--understood as the ability to invest in research and development activities, use modern operating technologies, and adopt and adapt new ones--is a major driver of economic growth and productivity** (Box 1). As documented by numerous authors (Box 1), roughly half of cross-country differences in per capita income and growth are driven by differences in Total Factor Productivity (TFP), generally attributed to technological development and innovation. Mexico's TFP growth, however, peaked in the 1960s (1.7 percent) and declined to 1.0 percent in the 1970s, -1.6 percent in the 1980s, 0.47 percent for the years 1990-1994, and 0.02 percent during the period 1995-1999. According to Lopez-Córdoba (2002), the modest TFP gains attained during the period 1993-1999 are mainly owed to reallocation effects "within" and "across" industries but not "within firms" which are associated with innovation.

Figure 1: High growth countries depict a dramatic take off in R&D investment



Source: Lederman and Maloney (2003b)

33. **There is a tight relationship between R&D efforts and the development process.** Lederman and Maloney (2003a) find that not only the share of GDP dedicated to R&D increases with income per capita in the average country, but also that several high growth comparator countries (such as Finland, Korea and Israel) had dramatic take-offs in R&D investment relative to the benchmark. This is a path that China and India have recently followed (Figure 1). By contrast, Mexico's investment in R&D is the lowest within the OECD and fast growing countries such as India and China, and it is around the average for Latin American countries. Several studies have estimated economic gains to firms investing in R&D ranging from 25 to 150 percent, a return far above the estimated average return on capital of around 7 percent. Social returns increase several fold after accounting for knowledge spillovers. Lederman and Maloney (2003b)

suggest a social return to R&D above 60 percent for Mexico. See Box 2 for a further review of the literature on linkages between innovation and productivity.

Box 2. Innovation is a Major Driver of Economic Growth and Productivity

Roughly half of cross-country differences in per capita income and growth are driven by differences in TFP, generally attributed to technological development and innovative capacity. These refer not only to the ability to engage in research and development (R&D) activities, which may or may not be transformed into new outputs, but also to the efficient use of modern technologies and adaptation of new ones. According to Prescott (1998), to understand large international income differences, it is necessary to explain differences in productivity (TFP), and one of the main candidates to explain these gaps is the resistance to the adoption of new technologies and to the efficient use of current operating technologies, which are conditioned by local institutional and policy arrangements (investment climate variables). Escribano and Guasch (2005a, 2005b), using firm level data from investment climate surveys, find that quality and training are important determinants of productivity in most countries of Latin America and Asia covered by their surveys.

Lederman and Saenz (2003) present econometric evidence suggesting that innovation outcomes, namely patents per capita, are an important explanation of the levels of development observed around the world. Lederman and Maloney (2003a) examine the relationship between the R&D effort and the development process and find that on average not only the share of GDP dedicated to R&D increases with income per capita, but also that several high growth comparator countries (such as Finland, Korea and Israel) had dramatic take-offs relative to the benchmark, a path that China and India have recently followed. Several studies have estimated economic gains to the firms investing in R&D ranging from 25 to 30 percent, a return far above the average return on capital estimated around 7 percent. Furthermore, if one considers the impact of firms' R&D spending on the economy through knowledge spillovers, the returns to R&D increase several fold. Lederman and Maloney (2003b) estimate that the social returns to R&D exceed the return to investments in physical capital by a factor of 6 to 10 depending upon the initial level of income per capita. For Mexico, the calculations suggest a social return to R&D above 60 percent.

But R&D expenses do not only reveal all the intricacies at work. Studies—using the structural modeling approach along Griliches (1998)—have investigated the channels linking investment in knowledge and innovation to productivity performance at the firm level and, in general, they find a significant impact of innovation output on the level of productivity. See Crépon, Duguet and Mairesse (1998), Griffith, Redding and Van Reenen (2001), Lööf and Heshmati (2001), Klomp and Van Leeuwen (2001) and Correa, Sánchez García and Singh (2005).

B. Mexico's Innovation System Performs below Par

34. The Mexican innovation system performs below par compared with economies of its income level with a low ability to translate investments into innovation.

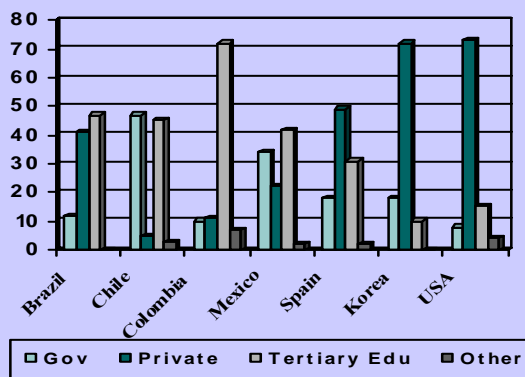
Lederman et al (2003) analyze two key indicators of innovation performance, total factor productivity (TFP) growth and the number of patents produced, and conclude that Mexico is currently under-performing in both dimensions when compared with other Latin American, East Asian and OECD countries. Dahlman and Kuznetsov (2005) construct knowledge economy indexes for Mexico and find that its relatively low ranking is due to weaknesses in all four knowledge economy pillars, namely economic incentive regime, education, innovation, and information and communication technologies (ICT). They also developed a modified knowledge economy index for each state, which proved to be highly correlated with GDP per capita (Annex I).¹³⁵ Sharp differences in the indexes across states highlight the importance of regional interventions to respond to regional challenges.

35. The poor performance of the national innovation system stems from a combination of factors:

Low investments in R&D and reliance on foreign technology...

- **Total R&D investment is far below OECD levels.** Expenditures on R&D as a percentage of GDP in Mexico (0.45 percent in 2004) is the lowest of OECD countries and inferior to other emerging economies such as Chile (0.6 percent in 2003), Brazil (0.95 percent in 2003), or China (1.2 percent in 2003). Most R&D goes to basic research (60 percent) as opposed to applied research. By contrast, in the US, only 15 percent is allocated to the former.

Figure 2: Mexico: Very Low Private Participation in R&D Investment
(R&D investment by sector as percent of total)



Note: Data corresponds to 2004 or latest year available.
Source: CONACYT, OECD, and RICYT

- **Low private sector participation in R&D.** According to the innovation survey (2001), in the period 1999-2000, only 28 percent of the Mexican firms reported having been involved in an innovation project and 13 percent reported performing R&D activities. There is no information available with respect to the total amount that Mexican firms spend on innovative activities. However, private investment in R&D, both as a proportion of GDP

¹³⁵ The modified economy index omits the incentive regime pillar due to missing relevant data and adds the economic performance pillar that includes such variables as GDP, FDI per capita, human development index, manufacturing productivity and number of business per 1000 people.

and as a percentage of total national R&D expenditures (Figure 2), is very low. In 2004, private Mexican firms invested less than 0.2 percent of GDP in R&D compared to 1.7 percent in the OECD area (2002), 0.4 percent in Brazil (2003), and 0.8 percent in China (2003). Large companies (above 500 employees) account for the majority (69 percent) of private R&D.¹³⁶

- **There is a continued reliance on foreign technology.** In 2003, Mexico earned the negligible amount of US\$54 million from technology intangibles (patent acquisition, technology licensing payments, protected knowledge and know-how transfer services), compared with the US\$608 million it had to buy from abroad. While reliance in foreign technology is appropriate, successful countries have complemented it with domestic developments. The dependency ratio measured by the number of non-resident to resident patent applications is about 24.

Table 1. Patents issued by the US Patent and Trademark office. Mexico vs. selected OECD and non-OECD Countries

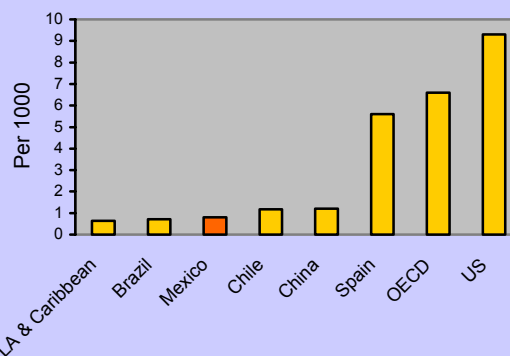
Country	Number of Patents (per million population)
Finland	183.1
China	0.9
Spain	7.6
Ireland	49.7
Brazil	0.9
Mexico	1.0
India	0.4
USA	320.1

Source: US Patent and Trademark Office

- **Mexico also compares unfavorably to other OECD countries on the number of patents registered with the US Patent and Trademark Office,** which is used a proxy for patents with a higher and global commercial value (Table 1). With a technology coverage rate (i.e., receipts over payments of the technology balance of payments) of 8 percent in 2004, Mexico is at the bottom of OECD countries.

Figure 3: Mexico's S&T skill base is very low by international comparison

(Researchers per 1000 economically active persons)



Note: Data corresponds to 2004 or latest year available.
Source: CONACYT, OECD, and RICYT

Low Science and Technology (S&T) skill base...

- **Investment in human resources is low following a similar pattern to that of R&D intensity (Figure 3).** In 2004, there were 0.8 researchers per thousand workers in

¹³⁶ In the *Congreso Nacional de Vinculación para la Competitividad* organized by the *Foro Consultivo Científico y Tecnológico*, it was suggested that the 100 largest Mexican firms have only 12 research groups, which altogether hire less than 1,000 specialized researchers with PhDs. Those firms use a strategy of *learning by using* rather than one of *learning by doing*.

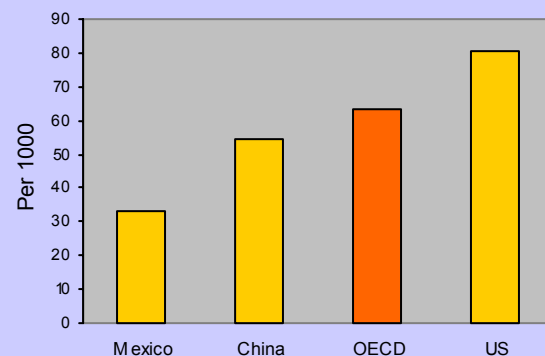
Mexico, compared with 1.2 researchers in China (2003), 1.6 in Argentina (2002) and an average of 6.6 researchers per thousand workers in OECD countries (2000).

- **Moreover, the balance of R&D personnel is greatly skewed towards the public sector** (Figure 4), with only 33 percent of all R&D personnel working in industry in 2004 compared to 64 percent on average in OECD countries (2000) and 54 percent in China (2003). The Mexican results contrast with the findings of recent studies (Lopez-Acevedo, 2001) which provide evidence that a high level of skills in Mexican firms positively influences technology absorption. These results are consistent with a wider body of empirical literature that has conducted similar analysis with firm data from other countries.

Very modest involvement of the private sector in innovation...

- **Figures 2 and 4 highlight the limited involvement of the private sector in innovation.** According to Mexican firms (survey 2001), high cost, excessive economic risk and lack of access to finance are the most important limitations to innovation (Figure 5). Information asymmetries between firms and external financiers (e.g., banks or equity investors) constrain access to finance. The investor has better knowledge of the proposed innovation and capacity to undertake it than the external agent. These asymmetries make it harder for a potential lender or equity investor to gauge the returns from a potential investment in innovation. Information asymmetries are bound to be higher at the early stage of the innovative process where the funding gap is most acute.

Figure 4: Mexico's integration of S&T staff in the private sector falls short of international benchmarks (Researchers in the private sector per 1000 economically active persons)



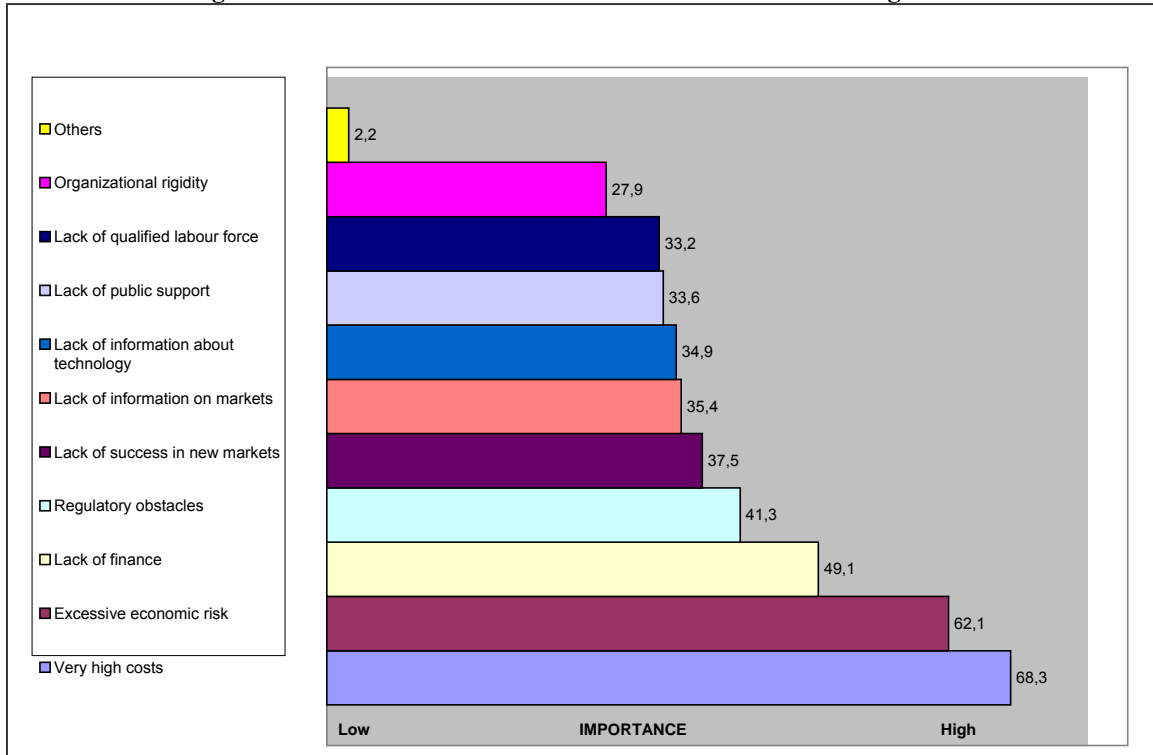
Note: Data corresponds to 2004 or latest year available.
Source: CONACYT, OECD, and RICYT

- **The environment for entrepreneurship is weak resulting in few potential high-growth start-ups suitable for venture capital funding.** Enterprises are constrained by traditional business values and by the lack of a risk-taking culture. Lack of venture capital funding is also a limiting factor for the appearance of technology-based start-up companies. The government has piloted a venture capital fund. While the preliminary results are positive, the total amount of funds raised is very small for the Mexican market. There is a clear need to scale up efforts.

Insufficient demand for quality services by the private sector...

- **Demand for conformity assessment services is relatively narrow, meaning that Mexico has a low number of ISO (International Organization for Standardization) certificates.** Mexico's ISO 9000 certificates as a share of the total for the Latin America and Caribbean (LAC) region was 17 percent in 2004, while its share of LAC GDP was roughly 30 percent in 2004 (Figure 6). As a share of the world's total, Mexico's certificates increased during the 1990s but stagnated during the early 2000s.

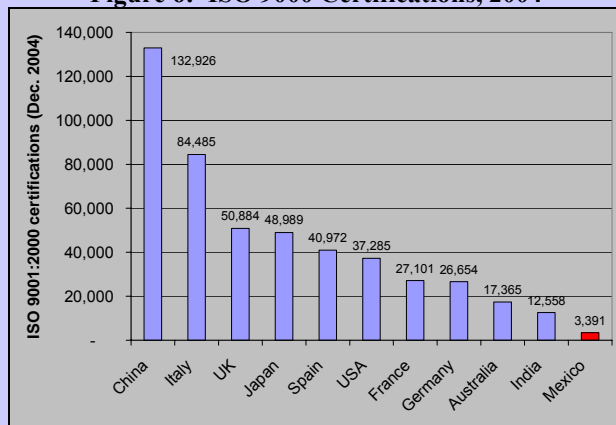
Figure 5: Obstacles to Innovation for Mexican Manufacturing Firms



Note: Based on innovation survey conducted in 2001 covering the period 1999-2000.

- **Demand has concentrated in the following four sectors:** (i) Mexican exporters that need a recognized certificate of quality; (ii) foreign firms exporting to Mexico; (iii) providers of goods and services to the public sector; and (iv) firms listed on the Mexican stock market. This universe, however, encompasses a very small share of Mexico's formal business sector.

Figure 6: ISO 9000 Certifications, 2004

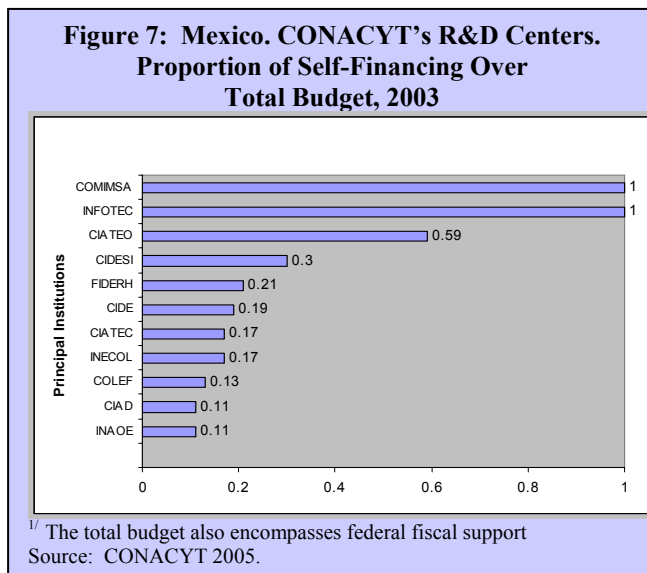


Source: ISO (2004)

- **There are also weaknesses on the supply side, or the provision of such services, with a high geographic concentration of testing laboratories and inspection bodies.** Nearly 40 percent of testing laboratories are concentrated in Mexico City, Estado de Mexico, Jalisco, and Nuevo León, discouraging firms not located near those places. Prices for conformity evaluation services (i.e., certification, inspection, and testing) are relatively high given that there are very few accredited firms and bodies.

Timid local and international linkages

- **International evidence shows that the effectiveness of a national innovation system depends more on how firms, universities, and research institutions interact with each other** and less on how they perform independently (Ferranti et al. (2003)). In Mexico, national linkages and networks are insufficiently developed, and international cooperation is barely taking off.
- **There are weak linkages between public R&D institutions and the productive sector.** Few companies have important linkages with public R&D institutions (12 percent of innovative firms) and universities (12 percent of innovative firms). This implies limited private sector access to basic and applied research, reduced relevance and commercialization of R&D, and a low return to public R&D investments. López-Acevedo (2001) finds that when Mexican firms have linkages with public research institutes, their capacity for technology absorption increases significantly. Similar findings exist for the majority of other OECD countries.



- **The low provision of technological services to the private sector by Mexico's public R&D centers provides evidence of the limited interface.** As Figure 7 depicts, self-financing through the sale of technological services constitutes a modest amount for most public R&D centers associated with the National Science and Technology Council (*Consejo Nacional de Ciencia y Tecnología*, CONACYT). Even though the number of projects developed with firms has

increased from 1,391 in 2000 to 3,695 in 2003, more progress needs to be made.

- **There is a low level of cooperation among firms in the development of new products and processes.** In the period 1999-2000, most new or significantly improved products were developed within the firm, and only 15 percent of firms reported having collaborated with other firms. In the development of new processes,

cooperative behavior is somewhat more prevalent with 26 percent of the firms working with other firms.

- **There is limited international participation and linkages.** Despite being the twelfth largest economy, Mexico has relatively few and scattered links with foreign knowledge centers, funds only 0.25 percent of the world's R&D, and its science base produces only 0.7 percent of new global S&T knowledge, as measured by publications in top S&T journals. The impact index of the Mexican scientific publications for the period 2000-05 is 2.69 well below many OECD countries with levels above 5 and the world total with 4.54. Mexico's contribution to the global pool of science and technology-based knowledge and its integration with the innovation systems of other OECD countries is deficient.

High regional concentration...

- **There is a high concentration of S&T activities around Mexico City despite improvements in recent years.** This concentration can be observed in the number of researchers (50 percent), doctoral programs (34 percent), and students in those programs (62 percent) around Mexico City. Also, programs that support R&D and innovation funds still reflect a bias in favor of Mexico City and more developed regions. The Technology Modernization Program, launched in the late 1990s, faced a challenge in achieving a wide geographical coverage with 59 percent of projects concentrated in four states. The Economic Sectoral Fund that replaced it is confronting similar geographical hurdles: half of the projects approved during the period 2002-2005 corresponded to just 4 states. Concentration is even higher when measured in terms of resources (69 percent). Of the 10 technological centers supported by CONACYT during the period 1999-2005, half were located in the Distrito Federal and Jalisco.

C. Recent Accomplishments

36. **During the 2001-2006 period, Mexico began to address the weaknesses of its innovation system.** The government's economic and social plan included a Special Plan for Science and Technology (*Programa Especial de Ciencia y Tecnología*). A new legal framework—the Law for Science and Technology (*Ley de Ciencia y Tecnología*) and Law for CONACYT (*Ley Orgánica del CONACYT*)—was put in place providing the basis for a better articulated system and for boosting the private sector role in innovation. The plan envisioned an increase in the proportion of R&D financed by the private sector from 26 to 40 percent of total R&D expenditures over the period 2001-2006. In 2004, this proportion was already 34 percent and 0.17 percent of GDP. Notwithstanding this progress, private participation is still far from levels observed in most OECD countries where it represents on average 65 percent of total R&D expenditures (Figure 2).

37. **CONACYT's work plan started to shift, albeit too slowly, away from supporting pure research toward developing commercial applications that will help firms become more productive.** Since 2001, a series of support programs have been launched to address different needs in the innovation strategy of firms, including sectoral

and mixed funds and fiscal incentives. The sectoral funds are collaborations with federal ministries and the mixed funds with state or municipal governments. They both provide transfers to establish and start-up companies on the basis of project proposals selected through competitive mechanisms. In the fiscal incentives program, firms can claim up to 30 percent of their annual investment in R&D projects for a tax credit. Other key programs include public-private innovation consortia and research networks, venture capital and seed capital initiatives, scholarships for researchers to work in firms, and firm incubators and accelerators.¹³⁷

38. In parallel, CONACYT consolidated a transparent and merit-based selection process for research funding and promoted research in new strategic sectors. The scope of programs to support the formation of highly skilled human capital also improved. In particular, a new scholarship program-- Scholarships for Excellence—was set up. The program has strengthened targeting of scholarships towards graduate programs of high quality and private sector demand and has moved towards funding of doctoral students, where the financing impact is highest. In 2004, 1,717 doctoral students completed their degrees compared to 833 in 1998. Notwithstanding these achievements, indicators on the S&T skill base remain very modest compared to the OECD average and China, as noted earlier.

39. Overall, a few interesting pilots for embracing the knowledge economy agenda, such as the Monterrey Knowledge Technopolis (Box 3), have surfaced but these are still islands. A national sense of urgency on the need to embrace the knowledge economy and promote innovation to boost growth has not yet emerged.

Box 3. Monterrey Knowledge Technopolis

The Monterrey Knowledge Technopolis is an initiative sponsored by the state government and the private sector to convert Monterrey into a knowledge-based economy. This initiative already has three important prerequisites as a pilot of the knowledge economy agenda: public-private collaboration, a sense of urgency for change, and promising institutional experiments such as the Techmileno. (The Techmileno is a virtual university that the Monterrey Institute of Technology has spun off to reach poorer students at a far lower cost while maintaining quality).

D. Moving Forward

40. Innovation must take a central place in Mexico's growth policy debate. While recent efforts have moved in the right direction, Mexico needs to pursue a more aggressive national innovation agenda that will boost its productivity and growth and will help the country adjust to global economic changes. Funding for innovation needs to increase and resources need to be used in a more effective manner.

¹³⁷ See Mexico Competitiveness Development Policy Loan (Report No. 34570-MX), and Knowledge for Innovation Loan (Report No. 31146) for a full description of these programs.

Box 4. Ireland: A Successful Transformation into a Knowledge Economy

Ireland has shown a radical transformation from a sluggish agricultural economy to a knowledge-based economy making it a global success story. During most of the 1990s, its GDP grew by an average of 7 percent per year, spurred by rapid increases in TFP (about 4.25 percent per year over the period 1991-2000). Ireland's success provides interesting lessons for Mexico which faces similar challenges to those confronted by Ireland two decades ago.

In Ireland's case, growing concerns over economic stagnation in the 1980s drove a broad-based political consensus on a high technology economy agenda. The 1987 agreement on the Program for National Recovery included the support of political parties, unions, and business leaders. The new economic program was based on fiscal stability, tax reform, a favorable regulatory environment, investments in education and infrastructure, and targeted development in high technology areas. The European Union membership offered a large attractive market, while the political consensus provided the basis for continuity and helped to mobilize domestic and foreign investment. The need for concerted action and development of a powerful national vision that will ensure continuity are relevant lessons for Mexico as it seeks to accelerate and deepen its innovation efforts.

The Irish government established Forfas in 1994 to coordinate the development and implementation of national plans for technological development and innovation. IT, biotechnology, and international services became key targets areas of specialization. Today, Ireland has around 800 international and local software companies, and software has become a leading export sector having performed well internationally. As lower cost countries advance in these areas (e.g., India and China) Ireland faces the challenge of continuing to produce higher-value goods and services. In response, IT firms in cooperation with the government are pursuing a strategy of consolidation and focus on areas of comparative strength.

Ireland also sought to promote broad-based innovation to ensure increases in productivity and growth across a wide range of economic sectors. Among several programs, Ireland instituted a National Linkage Program (1987) between multinational companies and SMEs to expand the local technological capability. The main sector targeted was electronics given its large size and greater potential for local outsourcing. Locally sourced materials in the electronics sector rose from 9 percent to 19 percent from 1987 to 1992. About 200 multinational companies and 83 supplier companies participated in the program. Participating multinational companies were asked to provide technical assistance, while SMEs underwent a rigorous selection process based on their potential capabilities. Over the period the productivity and employment of participating SMEs increased by 36 percent and 33 percent, respectively (World Bank 2005). Ireland's linkage program provides a model for promoting similar supplier development and technology transfer programs in Mexico.

By contrast to the Irish case, the Israeli economy offers an interesting illustration of extraordinary success in ICT, but not broad-based innovation. While the ICT sector grew at an average of 16% per year during the 1990s and accounted for a third of total exports, the rest of the economy depicted sluggish growth and in many sectors total factor productivity actually declined. Most of the Israeli economy did not engage in innovation. A relevant lesson from the Irish and Israeli experiences is that growth-promoting innovation policies should be understood in a broad way. Innovation should comprise both products and processes and could be generated by new R&D or the adoption or adaptation of existing technologies.

Source: World Bank (2005), Lewis (2006), Trajtenberg (2005)

Box 5. China and India: New Global Players

China: In the mid-1980s, China initiated reforms to embrace the knowledge economy. It further opened the economy to foreign investors and provided them with special tax and tariff concessions and other incentives. In parallel, it boosted its investments in human capital, especially in key science areas. Regional governments, which were allowed greater freedom in decision-making, started to compete with each other to attract foreign investment. The Chinese government used various instruments to foster technology transfer from foreign investors and, before joining the World Trade Organization, it applied trade restrictions and offered lower tariff rates to companies that manufactured in China. Chinese firms have also actively sought technology transfer concessions from foreign partners.

In parallel, the government launched major reforms in the organization and funding of public research institutions with the view to reorienting R&D towards the needs of the productive sector. Historically, public research institutes followed the guidelines of the 5-year national plans and had very limited (or no) contacts with firms. The government sought to radically change this pattern and initiated annual cuts of direct government funding. By 1993, only 28 percent of the income of public research institutes came from direct government support compared to 64 percent in 1986. Public research institutes aggressively sought new revenue sources, including the provision of technical services to industry. Universities underwent similar changes.

India: After decades of meager growth, India has made tremendous strides in its economic development and is becoming a global force in selected high tech areas, in particular software services. India enjoys a critical mass of skilled, English speaking workers in science and technology fields. The country has invested in the development of many world-class institutions of higher learning, especially in the sciences and management fields, such as the Indian Institutes of Technology, Indian Institutes of Management, Indian Institute of Science, and the Regional Engineering Colleges. All these institutions provide critical human capital. In the area of scientific and technical education, it produces almost 200,000 engineers, scientists, and technicians per year, although all institutions do not yet offer the same high quality of education.

India has established valuable knowledge links and networks with its diaspora. Its diaspora is very entrepreneurial. In the United States they have come to realize an important position in the ICT sector and have subsequently played an important role in the development of the ICT sector in India, especially in the form of linkages. The initial success of the Indian diaspora has attracted other multinational companies to outsource services to India. More recently, many multinational companies (e.g., GE, Microsoft, IMB, Intel and others) have established full R&D centers in India. India's successful experience with its diaspora offers interesting lessons for Mexico.

New high tech niches are emerging in India. Some Indian pharmaceutical companies, for example, are starting to make a mark on the international arena and are increasingly investing in R&D to meet their global ambitions. Developing new products and reaching new markets are driving the R&D agenda, especially of large firms. Besides pharmaceuticals, R&D investments are also rising in rapidly growing industrial sectors such as electronics and transport.

Continued growth in India faces numerous challenges, especially in the investment climate area and institutional environment. Addressing these challenges will be critical for India to further embrace the knowledge economy and realize its tremendous potential as a global player.

Source: World Bank 2005 (b) and Lewis (2006)

41. **In defining its agenda, Mexico can draw useful lessons from other countries that have faced similar challenges and succeeded in dramatically transforming their economies**, e.g. Ireland in the OECD (Box 4) and new global players such as China and India (Box 5). Ireland's experience highlights the need for concerted action to ensure continuity and success of a long-run innovation strategy and a proactive approach by the public sector. Also, growth-promoting innovation policies have to be understood in a broad way. Innovation should comprise both products and processes and could be generated by new R&D or the adoption/adaptation of existing technologies by firms. Ireland's experience contrasts with that of Israel where innovation mainly concentrated in the ICT sector and with a more limited productivity impact on the rest of the economy.

42. **Linkages between research institutions and the productive sector are critical to ensure that knowledge is transformed into innovation.** China achieved a radical transformation of its public research centers to support the productive sector and aggressively pursued other complementary policies to foster technology transfer from foreign investors. The availability of S&T skills is a necessary condition for any innovation-based growth strategy to succeed as the experiences of Ireland, China and India and other countries have shown. Diasporas can also provide critical linkages to global markets and technologies; the potential of Mexico's diaspora has not yet been realized.

43. **Based on progress achieved in recent years and other international experiences, Mexico's growth-promoting innovation agenda should focus on the following elements:** (i) increase the level of funding at all levels of government but in a coordinated manner; (ii) place private sector innovation at the heart of the agenda; (iii) foster a wider regional coverage of S&T activities; (iv) actively promote national and international linkages; (iv) continue building the S&T skills base; and (v) evaluate the impact of programs to ensure that resources are used in an effective manner. This should be accompanied by a strong effort to increase private sector-led investment in Information and Communications Technology (ICT), which constitutes an essential platform for the success of the innovation agenda.¹³⁸ ICT is also a key instrument for the diffusion of knowledge.

44. A further discussion of the core elements of an effective innovation strategy follows:

Increase the level of funding and coordination across all levels of government and place greater emphasis on productive innovation...

- **There is a need to further strengthen funding mechanisms and incentives for the National Innovation System across all areas and levels of government.** Overall,

¹³⁸ Despite impressive growth during the 1990s, Mexico's ICT investments as a share of GDP continue to lag behind other Latin American and OECD countries, and the ICT divide between urban and rural areas remains an issue. Provision of private sector provision of infrastructure needs to be expanded. To do so would require healthy competition and a stronger regulator. Increased public funding and clearer definition of priorities is also necessary to redress the ICT regional divide. For further analysis, see note on Competition Policy by Jose Luis Guasch and Keta Ruiz.

the creation of *sectoral* and *mixed* funds has been a positive step that has helped to improve targeting of resources by focusing on priority sectors and states' needs. Synergies and complementarities between these funds need to be better exploited. New programs have often been created without closure or streamlining of existing ones. A rigorous evaluation of the multitude of programs could help identify potential synergies and areas where there is duplication.

- **Increase the level of public financing, particularly, of productive innovation projects.** The aim should be to reach overall R&D levels (public and private) around 1% of GDP by 2010, with the additional funds exclusively targeted to applied research and productive innovation.

Promote greater innovation efforts by firms...

- **Promote technology upgrading and development.** Successful programs that promote technology development and upgrading need to be scaled up. This could be partly achieved by consolidating some of the existing programs following an impact evaluation. Currently, there are too many enterprise support programs under different ministries and state and local authorities. Quality awareness also needs to be fostered among small and medium-sized firms since for many of them this could be the entry point to the technology upgrading process.
- **Speed up the formation of the venture capital industry** by scaling up programs such as the one recently launched by CONACYT and facilitating the participation of institutional investors. Pension funds, for example, require regulatory approval to invest in venture capital funds and insurance companies face a very low limit.

Foster greater interactions between public research centers and industry...

- **OECD countries are increasingly promoting public-private collaborations to foster innovation and accelerate the transformation of knowledge into productive innovation** (Box 6). Although the AVANCE¹³⁹ and the consortia (public-private collaborations in research and innovation) programs can be viewed as entry points for facilitating such interactions, overall efforts in this area are still timid by comparison to OECD countries.
- **Making science more relevant to industry requires both more funding to enhance such linkages and a deep reform to enhance incentives of research organizations to cooperate with industry as in China (Box 5) and other OECD countries.** CONACYT's research centers, which receive as much as a third of CONACYT's funding, should be encouraged to seek greater collaboration with industry as well as more competitive funding. Enforcement of the existing performance contracts could be enhanced, and institutional funding could be

¹³⁹ *Programa Avance (Alto Valor Agregado en Negocios con Conocimiento y Empresarios)* offers funding to help transform scientific and technological developments into products, processes, and services with market potential. The fund can support the basic engineering of products and processes, market testing, and patent registration.

contingent upon more private sector funding and/or financing via public competitive funding.

- **Improving collaboration incentives will require a review of Mexico's intellectual property rights system and the establishment of a framework for public institutions to reward staff collaborating in successful research with industry.** Mexico remains one of the few OECD countries that does not allow researchers of public institutions to have rights to the financial upside of their work. Following the pioneer Bayh-Dole Act (1980) in the United States, the vast majority of OECD countries have amended legislation to clarify intellectual property rights of publicly funded research and remove obstacles to its commercialization. See OECD (2005a, 2005b, 2005c) and the examples of Finland, France, Japan, Norway, and Switzerland below.¹⁴⁰

Box 6. Fostering Public-Private Collaborations for Innovation in the OECD

OECD governments are increasingly promoting public-private partnerships to foster innovation. According to OECD (2005a, 2005b, 2005c), the rationale of this policy instrument is to facilitate new avenues for commercialization of public research; enhance the leverage of public support to businesses R&D through cost and risk sharing; and strengthen linkages across all actors in the innovation systems. The expansion of these partnerships reflects the partial failure of other policy instruments in achieving such goals.

In the United States, a series of initiatives was launched in the early 1980s to promote collaboration in research and innovation between the public and private sectors. Across the OECD, more broadly, a new wave of initiatives to encourage public-private collaborations took place in the mid-1990s and has continued to expand since. Although the type of partnerships differs across the OECD, the majority of OECD countries run some form of public-private partnership for innovation program, and these represent a significant share of R&D public funding in many countries. Some countries, e.g., Spain, require a private firm to lead such collaborations in order to promote a commercial orientation. Spain's new program also requires the consortium group to involve a minimum of two SMEs to encourage wider spillovers and enhance the research capacity of smaller firms.

In France, the share of public-private collaborations in competitive funding of R&D by the French Ministry of Research had reached 70 percent by 2002, up from 37 percent in 1998. In Australia, public-private partnerships have now reached 9.1 percent of the overall public budget for science and technology and keep growing. See OECD (2005a, 2005b, 2005c) and Mercer (1998) for a review of selected OECD experiences and Australia, respectively. Tekes, the National Innovation Agency of Finland, also offers a good example of public-private collaborations (<http://www.tekes.fi/eng/>)

Source: Mercer (1998) and OECD (2005a, 2005b, 2005c)

¹⁴⁰ In France, the 1999 Law on innovation removed most regulatory obstacles to public-private research collaborations. It now provides incentives for researchers to participate in the creation of spin-off firms and facilitates the mobility of researchers to such firms. In Japan, the new Law on Special Measures for Industrial Revitalization (1999) allows contractors of government research projects to have intellectual property rights resulting from their research. In Norway, the 2003 Law amending the Act on the Ownership to Inventions made by Employees provides a better balance of rights and responsibilities for researchers and institutions and facilitates the commercial exploitation of inventions at universities and colleges. Switzerland has also amended its laws allowing researchers a share of the profits arising from commercialization, and Finland is also formulating new legislation on intellectual property rights of researchers at universities.

A more proactive approach...

- **There is a need for higher pro-activity to induce a large number of productive research consortia, among firms of various sizes and among universities and research centers and private firms.** To achieve this, CONACYT could consider developing and financing “articulators” of the system or “technical brokers”, a sort of intermediary whose role is to facilitate and increase the supply of consortia and motivate the demand for technological services more generally.

Promoting regional development...

- **State-level innovation sub-systems need to be strengthened** to ensure that S&T initiatives respond to local priorities and prevent a concentration of efforts in more developed regions. This will entail enhancements in the design of mixed funds¹⁴¹ and granting a greater role to state-level science and technology councils and economic development agencies in identifying regional priorities. State innovation systems should also promote more collaborative R&D networks in order to establish regional innovation clusters.
- **State governments in coordination with CONACYT need to complement the above initiatives** and other demand support programs with an expansion of the regional infrastructure for technology services, especially to support small and medium enterprises. In recent years, CONACYT helped establish and strengthen such technology centers (ten in total) but further investment is necessary to encourage the formation of more centers in other states.
- **Spain’s experience with technology centers (“CITES”) may prove useful.** “CITES”, which are specialized in a sector or in a general purpose technology (e.g., ICT), have increased the pace at which technologies are adapted by small and medium enterprises (SME). Today, they serve about 18,000 small and medium enterprises in Spain. Nearly 60 percent of their funding base comes from the private sector, and the majority of their board is drawn from the private sector. Such a governance structure has promoted a strong industry orientation and culture.¹⁴² Regional governments were also important sponsors and were instrumental in the early gestation periods of the centers. Initially, these centers were mainly focused on technology transfer to enhance SME competitiveness. More recently, they have engaged in basic research and development in collaboration with universities in order to deepen sectoral innovation.

Formation of highly skilled human capital...

- **The formation of highly skilled human capital with an emphasis on quality, priority areas, insertion in the private sector, and internalization should**

¹⁴¹ Mixed funds include mixing resources from the federal government and corresponding state government.

¹⁴² Their funding base was drawn from firms (58.6%), regional governments (22.6%), national governments (9.8%), and international (8.8%). See OECD (2005)

continue. Scholarships should focus on doctoral programs and on strategic areas according to needs revealed by industry and the states, e.g., sectoral and mixed funds. Programs to facilitate the integration of skilled human capital in the private sector should be further encouraged. States with fewer doctoral students should receive priority funding to foster a more equal distribution of S&T development. Scholarship programs could also promote some co-financing by universities and students, e.g., a 10 percent co-financing by each,¹⁴³ and these programs should be subject to more rigorous monitoring and evaluation procedures, especially to enhance the reporting criteria of graduation rates and enforce the program's requirements.

- **Besides international scholarships, it is important to further improve the quality of national graduate programs in priority sectors.** This could be encouraged by launching a program to internationally certify the best Mexican doctoral programs to enhance quality and recognition and to support linkages with overseas institutions.

Foster internationalization of policies and programs...

- **Internationalization will involve the financing of activities that strengthen the integration of the Mexican innovation system into the global system and engage successful Mexicans abroad in an international knowledge network.** Efforts in this area have started but are still timid, e.g., a diaspora linking program and activities to promote linkages with relevant foreign graduate programs as discussed above. Mexico's diaspora linking efforts can learn much from the experiences of Ireland, China ("Bamboo Network") and India, whose diasporas have been crucial in helping to identify and transfer important technologies back home.

Urgent need to institute a monitoring and evaluation system...

- **There is an urgent need to establish a rigorous monitoring and evaluation system to ensure that resources are utilized in an effective manner.** To date, evaluations of policies and funds have been conducted in an ad hoc manner and many programs are yet to be evaluated. Evaluations, independently performed according to an accepted common methodology, are crucial to assess the success of various programs, and identify which programs need to be streamlined, merged, or scaled up and how to better exploit synergies across different policy interventions. Evaluation results, translated into design and operational improvements, could also help bridge gaps between the knowledge infrastructure and the needs of the productive sector.
- **In this vein, the establishment of an independent Observatory, whose primary functions are to monitor the development of the innovation system and evaluate the impact of public interventions, merits serious consideration.** An independent Observatory would help to inform the policy debate and promote continuous enhancements to public policies and programs.

¹⁴³Student co-financing could be done via an existing student loan provider to reduce the administrative burden on CONACYT, which was the reason for eliminating the student co-financing in 2004.

II. INNOVATION IN AGRICULTURE: A PENDING AGENDA¹⁴⁴

A. Declining TFP and Fierce International Competition

45. Despite consistently high subsidies in agriculture, drastic domestic reforms, and the advent of NAFTA, **the performance of the agricultural sector has been lagging since the 1980s**, compared to the Mexican economy as a whole and to major regional competitors in Latin America. For example, while total GDP grew 3 percent between 1984 and 2004, agricultural GDP grew only 1.3 percent (Table 2). Also, while Mexico exceeded the Latin America regional average in Total Factor Productivity between 1961 and 1980 (Mexico 1.63 percent and regional average 1.39 percent), the opposite was true in the period 1981-2001, when Mexico's TFP sank to 1.51 percent whereas the regional average rose to 2.31 percent (Table 3).

Table 2: Average Annual Growth Rates of Total and Agriculture GDP

Periods	Total GDP		Agriculture GDP	
	Total	Per Capita	Total	Per Capita
1984 – 1994	2.7	0.8	0.8	-1.1
1994 – 2004	3.3	1.8	1.9	0.4
1984 – 2004	3.0	1.3	1.3	-0.4

Source: World Bank statistics

46. **The agricultural sector is facing fierce competition in international markets.** Although agricultural exports to the US surged after NAFTA, growth was fragmented and concentrated in some irrigated and/or commercial farming sectors in horticulture and the processed food and beverage subsector. Overall agricultural growth has been moderate and has lagged behind fast growing regional competitors such as Chile and Brazil. In terms of the net agricultural trade balance (exports minus imports), the negative trade balance between Mexico and the United States, its dominant trade partner, increased from US\$211 million in 1991/93 to US\$ 1.3 billion in 2001/03. Mexico has been gaining market share of growing US imports of avocados, citrus, malt beverages (beer), onions, and pecans, but for most other export commodities, Mexico has lost market share of growing US markets (e.g., grapes, eggplant, strawberries, cauliflower/broccoli, other beverages, squash, and cut flowers).

¹⁴⁴ Also see chapter 8 for a discussion of agriculture and rural development more broadly.

Table 3: Annual Growth Rates of TFP in Mexico and Other Countries

Countries	Crops		Livestock		Agriculture		
	1961/80	1980/01	1961/80	1980/01	1961/80	1980/01	Average
Argentina	3.08	3.93	0.90	0.43	1.83	2.35	2.09
Brazil	0.38	3.00	0.71	3.61	0.49	3.22	1.86
Chile	1.08	2.22	0.24	1.87	0.69	2.05	1.37
Colombia	2.01	1.27	0.49	2.24	1.37	1.73	1.55
Mexico	1.53	1.43	3.02	1.63	2.26	1.51	1.89
LAC average	1.46	2.40	1.42	2.21	1.39	2.31	1.85

Source: Ávila and Evenson (2004)

47. **Mexico has been attempting to diversify its export market base since the implementation of NAFTA to reduce its dependence on the US market, which absorbs 86 percent of the total value of Mexican agricultural and food exports.** Despite signing a free trade agreement with the European Union (EU) in 2000, Mexico continues to lose its overall share of EU agricultural and food imports due to transport distances and fierce competition from Eastern European, African, Middle Eastern, and even South American countries.¹⁴⁵ Mexican agricultural and food exports to Canada are growing but from an extremely small base.

A Transforming but Still Weak Innovation System:

48. **In the mid-1990s, the Mexican agricultural innovation system was in a crisis owing to three reasons:** (i) inefficient performance of the *Instituto Nacional de Investigaciones Forestales y Agropecuarias (INIFAP)*; (ii) dismantling of the national extension service in 1994; and (iii) greater pressure to modernize production technology under stiffer competition brought about by NAFTA. Recent reforms have improved the overall health of the system by focusing on increased competition for operating resources between different research suppliers, greater stakeholder participation in priority setting, and decentralization. Four new mechanisms emerged: (i) a competitive agricultural S&T fund for up stream research, financed jointly by CONACYT and the Secretary of Agriculture; (ii) state level private Produce Foundations (one for each state); (iii) the Mexican Fund for Agricultural and Forestry Research (FUMIAF) to help INIFAP handle external funding coming from the agro-industry; and (iv) competitive “mixed” S&T fund targeting local issues and financed jointly by CONACYT and the state governments.

49. **The Produce Foundations, created in 1996, are administered by representatives of producers in an attempt to ensure linkages to farmer demands and priorities.** In 2005, the Produce Foundations financed 1,005 projects. The participation of INIFAP in these projects is still the highest but has declined drastically to about 37 percent in 2005, while universities have gained importance with 22 percent of participation in 2005. The *Produce Foundations* have instituted positive institutional

¹⁴⁵ Only about 4 percent of the total value of Mexican agricultural and food exports is directed to the EU.

changes by fostering regular interaction between all participants of the innovation system, which did not exist before. On the other hand, many challenges remain, including the lack of a specific financing instrument to facilitate cross-institutional collaboration in agricultural research. This results in insufficient cooperation among various agencies, very low participation of the private sector, weaknesses in technology diffusion as opposed to generation, small funding amount, inability to fund multi-year projects, and weak supervision and evaluation of project outcomes.

50. The use of imported technology is often a way of leapfrogging to a higher technological base. However, current investments in agricultural and food processing technology in Mexico have resulted in a widening income disparity among Mexican producers and agribusiness operators. New-technology-based increases in production by the large commercial farms and agribusinesses in Mexico have led to a drop in market prices and incomes of small and medium-sized producers. For example, investments in fruit and vegetable processing technology that allow large Mexican producers and packers to take advantage of the export opportunities created by NAFTA also put small and medium-sized fruit and vegetable processors in Mexico at a competitive disadvantage.

51. Although foreign capital is being increasingly invested in technology for the development of certain Mexican agricultural and agribusiness activities, increasingly less is being done by the public sector to adapt and commercialize the technology for the Mexican agricultural industry in general. Moreover, only limited research is being undertaken to develop technologies to assist small and medium-sized farmers compete in an increasingly international Mexican agricultural marketplace. Investments in technology development and diffusion are critically needed to facilitate development of the Mexican agricultural sector, mitigate the structural effects of more open trade, and strengthen Mexico's agricultural export competitiveness.

Moving Forward:

52. Mexico has successfully tackled the foreign market access problem through its aggressive bilateral trade negotiation strategy, but it now needs to remove internal constraints that affect its competitiveness in order to take advantage of the greater foreign market access. While some specific export promotion efforts will need to be included in the policy mix, the key general component of any successful strategy to enhance the export competitiveness of Mexican agricultural and food products must be a substantial increase in public investments in several critical areas, including (i) the expansion of irrigation water supplies and delivery systems and promote a far more efficient use of energy subsidies; (ii) transportation infrastructure; and (iii) technology development, diffusion, and adoption. On the innovation and technology front, the following is recommended:

- ***Increased public investment in agricultural research.*** Critically needed is investment in research to adapt and commercialize technology developed in other countries and to develop new technologies to better exploit Mexico's rich resource endowments, particularly in support of small and medium-sized Mexican agricultural and agribusiness firms. Besides

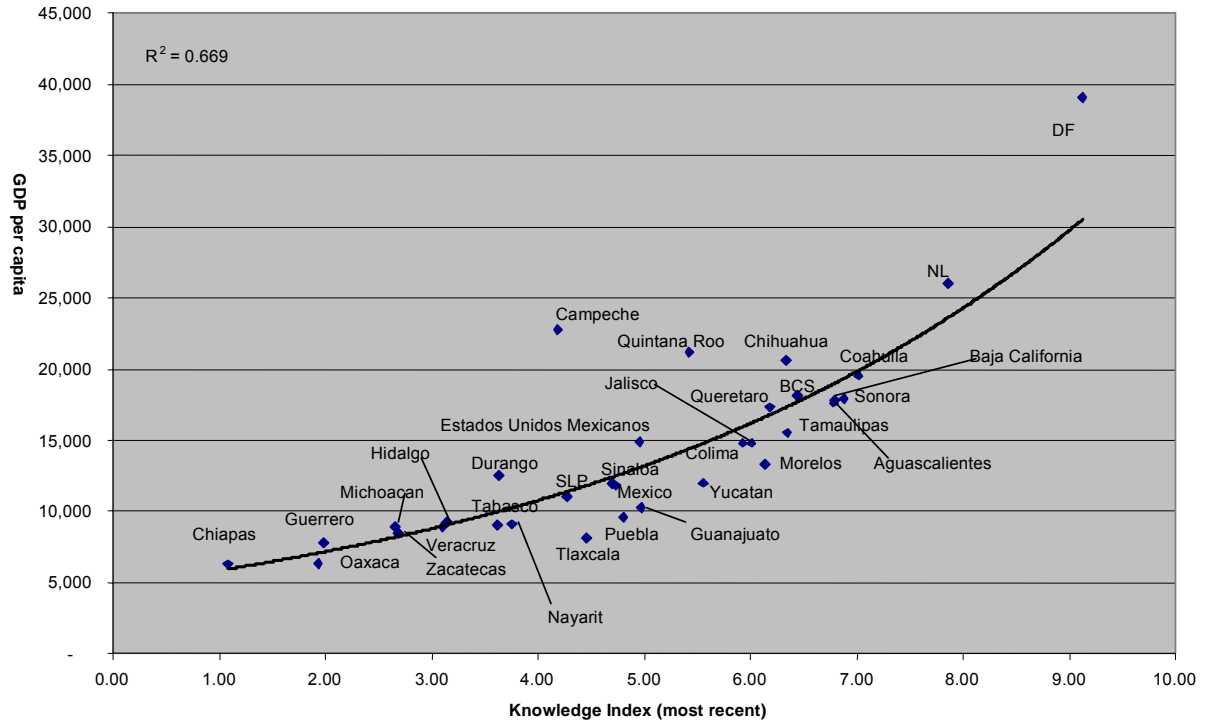
new technologies, research is also needed on a broad range of topics related to economic, animal, and plant systems; business and risk management; resource management; and a host of other topics to enhance decision-making along the Mexican supply chain.

- ***An effective system for technology and information diffusion.*** If investments in agricultural research are to provide an effective base for enhancing the competitiveness of the Mexican agricultural sector, an effective system for diffusing research results must be put in place. In the absence of an extension system, it is particularly important to develop training programs on the purpose and use of new technologies, aimed at *ejidatarios* and small agribusiness owners. Retraining for displaced labor is also necessary.
- ***An enhanced market intelligence system.*** Globalization is forcing marketing and distribution systems to be more tightly aligned, with producers becoming raw material suppliers for manufacturers and food processors. Supplies need to be better, faster, and cheaper to maintain a sustainable competitive advantage. Unfortunately, the generation and flow of information needed by agricultural producers and agribusinesses is not keeping pace with globalization changes. Although much has been done to enhance the market information system, a large segment of Mexican agricultural producers and agribusinesses still lacks access to crucial information to manage their risks and make sound production and marketing decisions. Significant improvements in market intelligence systems are necessary.
- ***A more efficient and effective SENASICA.*** Additional and stable resources to support the operations of SENASICA would greatly improve Mexico's effectiveness in responding to food safety and SPS problems and preventing occurrences through appropriate dissemination of GAP and technical support, especially oriented to small and medium-sized farmers. A 2004 external evaluation of SENASICA recommended changes such as increasing funds for emergencies or producer compensation in case of outbreaks, a closer working relation with the private sector, reducing the level of politicization, increasing staff with high technical skills, and improving coordination with the Ministry of Health on food safety issues.

Annex I

Source : World Bank Institute, Knowledge for Development Program, Knowledge Assessment

Mexico : Regional Knowledge Index and GDP per capita



Methodology, www.worldbank.org/kam.

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Chapter 6: ENVIRONMENTAL MANAGEMENT

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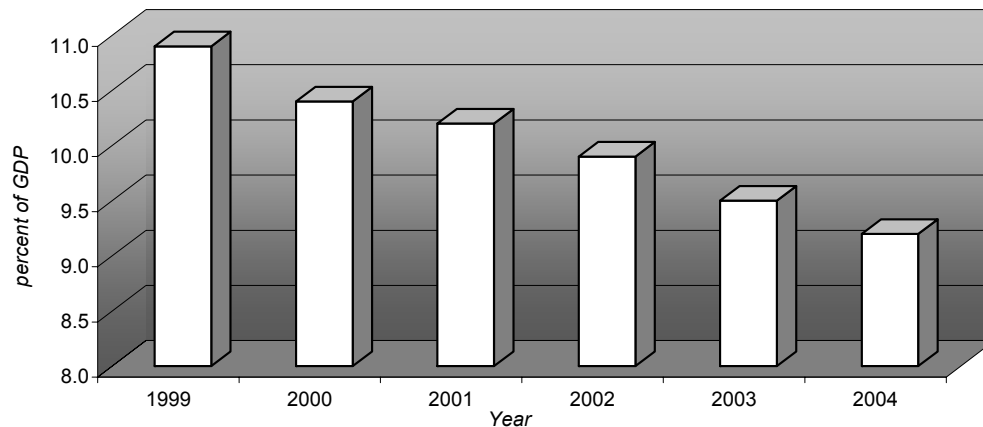
Environmental degradation limits economic growth, competitiveness, and social welfare. To address this problem Mexico has initiated a comprehensive “Agenda de Transversalidad” that goes beyond traditional environmental activities and seeks to mainstream environmental strategies into and across various productive and social sectors. This approach should be strengthened and expanded to help tackle the country’s three main environmental challenges: controlling pollution and promoting climate sustainability, conserving scarce and increasingly demanded water resources, and promoting win-win solutions that both preserve natural resources and help reduce rural poverty. This chapter examines progress and next steps related to the “Agenda de Transversalidad” and the challenges of pollution, climate change, solid waste, and natural resources management. Water sustainability is reviewed in detail in Chapter 9.

Introduction

1. **Environmental degradation and overexploitation of natural resources lie at the very core of Mexico’s development challenges.** Mexico’s 2001 – 2006 National Development Plan underscored the importance of environmental and natural resources issues, in recognition of (i) the linkages between the environment, social welfare, and human development; (ii) the need to use the country’s natural capital and environmental resources in a rational way that fosters sustainable growth; and (iii) the need to address forestry and water problems as national security issues. Efforts under this plan have helped reduce the negative impacts of environmental degradation and natural resources depletion on social welfare and economic development, lowering their cost from 10.9 percent of GDP in 1999 to 9.2 percent in 2004 (Figure 1). Annex 1 of this chapter summarizes the policy options for environmental sustainability recommended in the Bank’s 2000 policy notes and the Mexican government’s progress in implementing them.

2. **In line with the National Development Plan, the Secretariat of Environment and Natural Resources prepared an Environment and Natural Resource Program that stresses the need to mainstream principles of sustainable development into various economic sectors.** Environmental mainstreaming in key productive sectors (tourism, energy, water, and forestry) is helping alleviate the constraints that environmental degradation places on the country’s economic development and social welfare. The incorporation of environmental considerations into these four sectoral agendas – key drivers of economic growth – not only helps mitigate the negative impacts of environmental degradation on health and productivity but also offers some comparative advantages.

Figure 1: Cost of Environmental Degradation and Depletion



Source: National Institute of Statistics, Geography, and Information

3. **Despite the significant advances to date under the country's environmental agenda, challenges remain that highlight the need to continue, strengthen, and expand the environmental mainstreaming agenda.** For example, in the case of the energy sector, environmental impacts on human health affect labor productivity, in which a causal estimation suggests that a 10 percent reduction in ground-level ozone and fine particulate matter could create health and productivity benefits of US\$2 billion per year.¹⁴⁶ Growth of the tourism sector (which contributes about 9 percent of GDP) could also be increased by incorporating environment concerns and improving environmental quality and resource management. In addition, the forestry sector is affected by continued deforestation, associated with an increased frequency in flooding and landslides, loss of agricultural land due to erosion, and loss of livelihoods for forest dwellers (most of whom are impoverished).

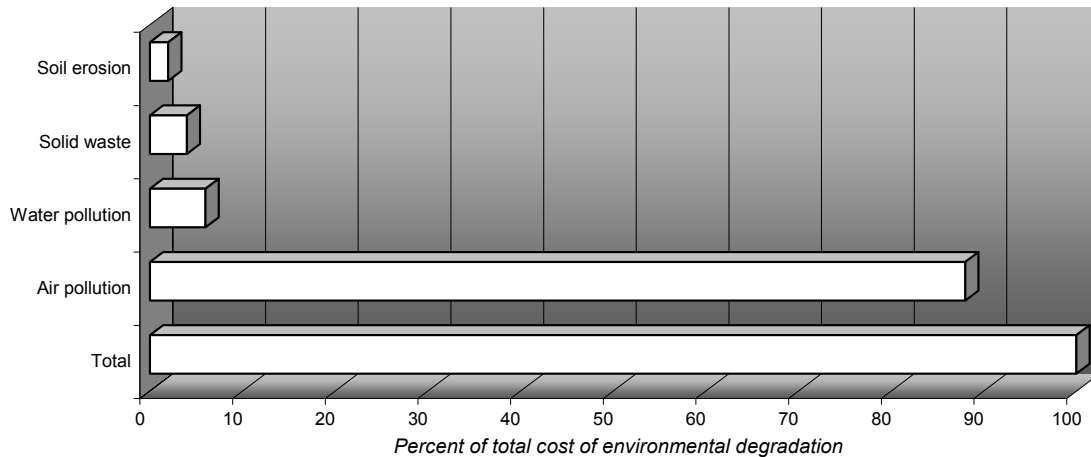
4. **A recent analysis of the cost of environmental degradation shows that the most significant environmental costs to the country are associated with ambient and indoor air pollution and inadequate water supply, sanitation and hygiene** (Figure 2).¹⁴⁷ The estimated costs associated with these factors are equivalent to about 9 percent of GDP, due primarily to increased mortality and morbidity from respiratory infection, cardiopulmonary disease, and waterborne diseases (particularly diarrheal illness). The burden falls most heavily on poor children. Since much environmental degradation results from productive sectors, there is a growing need for intersectoral coordination to address it adequately. Further, the impacts of environmental degradation on human health, economic activities, and social welfare highlight dichotomies between the environmental problems faced by urban populations, resulting from ambient air pollution and poor solid waste management, and those faced by rural populations resulting from indoor air pollution, deforestation, and protected areas management. Natural disasters

¹⁴⁶ Evans et al (2002).

¹⁴⁷ www.inegi.gob.mx

also account for a significant proportion of the cost of environmental degradation,¹⁴⁸ which tends to exacerbate the negative impacts of disasters (floods and erosion deriving from deforestation or illegal settlements). In Mexico, 68 percent of people affected by natural disasters are poor or extremely poor.¹⁴⁹ Available estimates indicate that between 1980 and 1999, natural disasters accounted for US\$10.3 billion in losses.¹⁵⁰

Figure 2: Share of Environmental Degradation Cost, by Category (2004)



Source: www.inegi.gob.mx

Air Quality Management

Challenges and opportunities from an urban perspective

5. **In Mexico, the energy sector is an important pillar of economic growth with significant comparative advantages.** The energy sector accounts for 3 percent of GDP, 8 percent of all exports, 37 percent of fiscal revenues, and close to 60 percent of public investment.¹⁵¹ The country's demand for energy has increased over the last decades; a trend that is likely to continue given its linkages with the country's economic growth. Mexico's abundant fossil fuels have been the primary source to meet this growing demand, with hydrocarbons accounting for over 90 percent of primary energy production in 2004.¹⁵²

¹⁴⁸ An individual tropical cyclone, such as Hurricane Wilma in 2005, or the flooding event in 1999 had an approximate cost of US\$250 million, Gonzalez and Magaña (2006).

¹⁴⁹ Fay, Ghesquiere, and Solo (2003).

¹⁵⁰ Bitar (2000).

¹⁵¹ Secretariat of Energy (2005).

¹⁵² Secretariat of Energy (2005).

6. **As Mexico's economic growth continues the environmental impacts of energy sector activities, especially those impacts associated with energy production and consumption and the country's resulting vulnerability to climate change, are likely to increase.** Fuel combustion has been associated with significant outdoor air pollution and carbon emissions, affecting health and climate variability.

7. **Pollution and Health. Ambient air pollution concentrations in the country's largest cities regularly exceed the thresholds above which they are associated with health effects, particularly among vulnerable populations.** The government's interventions have been instrumental in reducing the severity of air pollution in various urban areas.¹⁵³ However, despite these advances, air quality remains unsatisfactory more than 80 percent of the time in the Mexico City Metropolitan Area, 33 percent of the time in the Guadalajara Metropolitan Area, and 27 percent of the time in the Monterrey Metropolitan Area.¹⁵⁴ Annual average PM₁₀ concentrations in Mexico City are similar to those of other Latin American cities with severe air pollution, including Santiago (Figure 3).¹⁵⁵ The differences in mean PM₁₀ concentrations are more striking when compared with levels in cities outside the region with large industrial production and transportation sectors, such as Tokyo, who have successfully reduced their ambient concentrations to lower levels. Urban air pollution is estimated to cause 2,800 premature deaths per year.¹⁵⁶

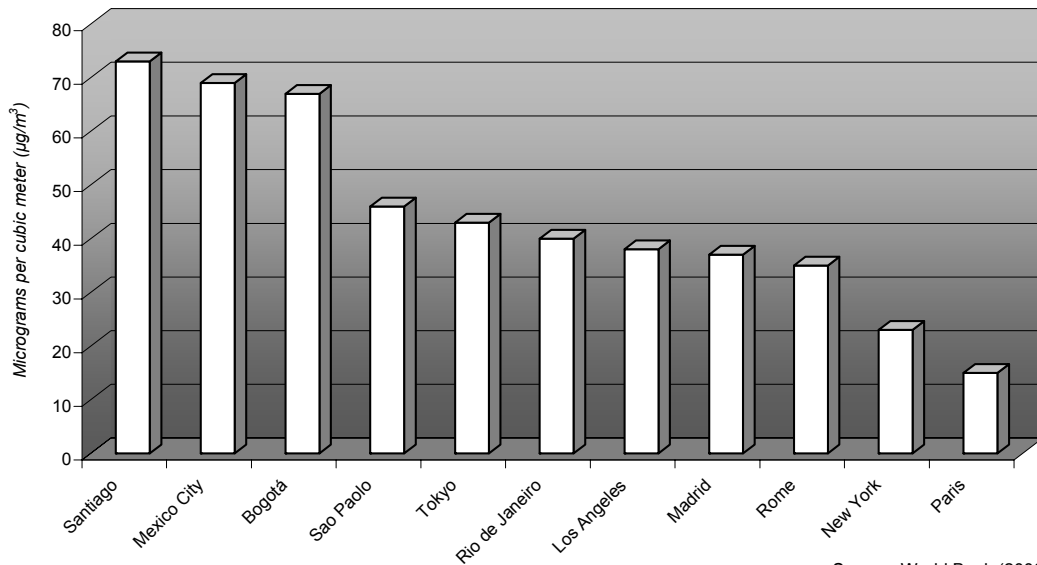
¹⁵³ Such actions have included (i) the reduction of sulfur content from 1000 to 300 ppm in Premium gasoline used in the three largest cities and assessment of investment needs to reduce sulfur content in all gasoline and diesel by 2008; and (ii) measures to increase energy generation from renewable sources.

¹⁵⁴ Secretariat of Environment and Natural Resources (2005).

¹⁵⁵ PM₁₀ stands for particulate matter up to 10 microns in diameter. Particulate matter is the air pollutant that most commonly affects human health.

¹⁵⁶ Hojer, Guevara, Stabridis, and Menzel (2005).

Figure 3: Average Annual PM₁₀ Concentrations in Selected Cities (µg/m³)



Source: World Bank (2006)

8. **Energy and Climate Change.** Activities in the energy sector, notably from oil production, power plants, and transportation, generate significant air pollution, carbon emissions, wastewater discharges, and solid and hazardous wastes. Oil has been identified as one of the two subsectors generating the largest costs in terms of environmental degradation and depletion of natural capital. The electricity, gas, and water subsectors taken jointly account for the third largest costs associated with environmental degradation.¹⁵⁷ Mexico is the ninth largest emitter of greenhouse gases in the world, with fossil fuels contributing to most of these emissions. Overall, 47 percent of Mexico's emissions result from energy production and consumption.¹⁵⁸ Mexico faces important barriers that prevent efficiency gains in its energy sector and diversification of its energy technology and fuels mix. Its main challenge is to transition to a lower carbon economy by (i) implementing reforms in the oil, gas and electric power industries (including energy efficiency measures and expansion of renewable sources) and (ii) scaling up of low carbon programs and technologies in the transportation sector. In addition, Mexico is extremely vulnerable to global climate variations, particularly in relation to scarce water supplies in northern Mexico and the impact of increased hurricane intensity and rising sea levels on coastal populations and resources. For this, it is imperative that Mexico prepare and begin implementing a National Climate Change Adaptation Strategy in anticipation of these impacts.

9. The environmental and health impacts of Mexico's energy sector call for continuing implementation of policies aimed at increasing energy efficiency and the use of renewable resources. Some of the most promising options for managing urban air

¹⁵⁷ Secretariat of Environment and Natural Resources (2002).

¹⁵⁸ OECD (2003).

pollution include reducing the sulfur content of fuels, controlling emissions from stationary and nonpoint sources, increasing production of natural gas, improving energy efficiency in the housing, industry and transportation sectors, enhancing the role of renewable sources, and expanding to cleaner and low-carbon energy sources. City planning interventions are also needed. To adequately pursue these options the mainstreaming agenda should be strengthened and expanded to the manufacturing and transportation sectors (refer to table on options for targeting environmental challenges at the end of the chapter) and a Clean Energy Action Plan should be designed and implemented.

Challenges from a rural perspective

10. **In contrast to the air pollution problems faced by urban centers, an estimated 3,800 premature deaths are related to exposure to indoor air pollution associated with the use of fuelwood, charcoal, and other solid fuels for cooking.** Rural households that burn solid fuels for domestic purposes expose women and children in particular to harmful concentrations of particulate matter and gaseous pollutants. This exposure is linked to illnesses such as acute respiratory infections (ARI), chronic obstructive pulmonary disease (COPD), and cancer.

11. **As with other environmental problems, the adverse health impacts of indoor air pollution disproportionately affect the poorer segments of the population.** Reducing these impacts will require a program of cross-sectoral interventions that could include the use of cleaner fuels, technical mitigation options such as improved cooking stoves, and policies that promote improved housing design.

Solid and hazardous waste management

12. **While Mexico has made significant progress in expanding the collection of solid waste, there are still significant gaps in its final disposal.** The enactment, in 2003, of the General Law for Prevention and Integrated Waste Management creates conditions for ensuring that municipalities assume responsibility for collection, transportation, and final disposal of wastes, as well as for separation of solid municipal wastes from hazardous wastes. There is still an insufficient coverage of services, however, resulting from limited and inadequate disposal and recycling infrastructure, limited managerial and financial capacity at the municipal level, and lack of proper equipment for collection and disposal. Many landfills do not fully conform to norms governing closure and containment, with only 60 percent of municipal solid waste nationwide disposed in sanitary or controlled landfills. While the aggregate costs of degradation and health risks arising from inadequate solid and hazardous waste management are not as high as those associated with air pollution, they do present significant localized costs. The traditional ad-hoc character of many solid waste disposal sites has contributed to serious health and safety problems in surrounding communities, including the promotion of vector-borne diseases and contaminated liquid or leachate

discharges.¹⁵⁹ Improper disposal also reduces property values, causes contamination of aquifers and surface waters, and contributes to social problems such as more vulnerable segments of the population who collect wastes from open dumpsites as a source of livelihood.

13. **A contributing factor to these gaps in service provision is municipality and landfill operators' lack of financial and technical resources to improve containment and make use of landfill gas options, even when it represents a financially attractive option.** This has led to an absence of investments in landfill gas facilities and in improvements in landfill design and operation. Options do exist for financial and technical resources to be channeled through carbon finance and carbon revenues, which obtained in this manner, can be invested back in improving the operation of the landfill itself. Carbon financing can provide economic revenues for an economically sustainable operating scheme and/or for the remediation of existing open dumps.

14. **Related to hazardous waste management, persistent organic pollutants (POPs), used in industrial production or generated as a by-product of various industrial processes, contaminate the atmosphere and soils.** The pollutants detected, including dioxins, furans, hexachlorbenzene (HCB), are highly toxic, causing a variety of adverse effects on the population's welfare (including disease, immune disorders and birth defects). To reduce these impacts, recommended interventions include (i) conducting an analysis to determine the main sources of emissions; (ii) establishing an inventory of pollutants generated as a combustion by-product; and (iii) gradually phasing out polychlorinated biphenyls (PCBs).

Natural Resource Management

15. **Mexico is one of the 12 "megadiverse" countries in the world, with forests covering close to 30 percent of the country's territory.** More than 10 percent of the world's species are native to Mexico, yet only 9 percent of national territory is managed within a protected natural area as compared to averages for North, Central, and South America of 16.2 percent, 22.5 percent, and 19.3 percent, respectively. Although an estimated 38 percent of Mexico's total forested area has commercial potential, the area currently under some type of management totals approximately 15 percent. Partly as a result, the sector has a trade deficit of over US\$1.1 billion. From 1990 to 2005, the deforestation rate was 25 percent higher than the average for the Latin American region and 400 percent higher than the average for upper middle income countries. Illegal logging has traditionally been one of the main causes of deforestation and has been estimated to represent a loss of around US\$400 million per year for the poor *ejidos* and communities that own the forested lands. There are approximately 12 million people populating forest areas--oftentimes as stewards--of which a large number are indigenous and in the majority, poor. Ensuring the stability of Mexico's forests is crucial to

¹⁵⁹ Leachate is the liquid produced when water percolates through any permeable material. It can contain either dissolved or suspended material, or usually both. It is most commonly encountered in connection with landfills, where it is produced as a result of rain percolating through decomposing waste. If the landfill does not have a leachate collection system, including an impermeable barrier, the leachate can enter groundwater and create environmental or health problems.

improving the livelihoods of the rural poor, reverse environmental degradation, and develop competitive products for domestic and international markets.

16. Despite trends in the governance of natural resources and conservation toward federalization, decentralization, and privatization, there are few proven instruments for effectively improving livelihoods while promoting conservation. As such, priority must be given to conserving remaining natural areas (e.g., protected areas, forests, watersheds, wetlands, coastal zones, reefs). Restoration objectives must be pursued as a means for conserving remaining natural areas, and when possible, these objectives should be sought within a market-based approach (e.g., “productive” restoration, which integrates economic incentives with sustainable forest management).

Tourism

17. The tourism sector has been one of Mexico’s main drivers of economic growth. The sector generates approximately 9 percent of the country’s GDP and over 5 percent of paid jobs nationwide.¹⁶⁰ The industry also provides relatively high-paying jobs, with high average annual earnings relative to the national average. In 2005 the sector generated foreign currency inflows of US\$11.8 billion, the third largest amount after oil exports and remittances. Mexico’s tourism sector has significantly increased its share of the international tourism market over the last five decades and currently ranks seventh among world tourist destinations.¹⁶¹

18. Environmental quality is a large determinant of the sector’s competitiveness. Surveys conducted by SECTUR in 2002 and 2003 and a strategic environmental assessment (SEA) revealed that environmental quality was one of the variables that most significantly influenced selection of tourist destinations. The SEA also pointed at the risks of failing to incorporate environmental considerations in the development and management of tourist destinations, as environmental quality was rated barely satisfactory.¹⁶² In the absence of markedly improved environmental management, the competitiveness of Mexico’s destinations is likely to erode in the short term. On the other hand, the implementation of policies aimed to enhance the sustainability of Mexico’s destinations could ensure that the country’s rich environment remains a source of competitive advantage, particularly as an increasingly larger segment of the tourist market shift from massive “sun and sand” destinations to “theme” travel.

¹⁶⁰ National Institute of Statistics, Geography, and Information (2003).

¹⁶¹ Mexico did not figure among the 15 top countries in the 1970s. Secretariat of Tourism (2006).

¹⁶² Secretariat of Tourism (2002).

Options for Targeting Environmental Challenges

19. A number of cost-effective options (policy and instrument based) are available to tackle the environmental problems that impose the highest economic and social costs as well as to strengthen the competitiveness of key sectors in Mexico.

Table 1: Options for targeting environmental challenges

<i>Objective</i>	<i>Recommended actions</i>	
	<i>Short-term</i>	<i>Medium- and long-term</i>
Reduce cost of environmental degradation and improve productivity associated with the <u>energy sector</u>, and strengthen sector competitiveness	<ul style="list-style-type: none"> • Implement urban air pollution control interventions, including: (i) reduction of sulfur content in diesel and fuel; and (ii) promotion of renewable energy use. • Implement indoor air pollution control interventions, including: (i) promotion of the use of LPG and other cleaner fuels in areas that predominantly use fuelwood, and increase users' access to cleaner fuels; and (ii) implementation of a program to promote improved stoves 	<ul style="list-style-type: none"> • In subsidy programs for rural low- income housing, include requirements for building codes and housing design, including chimney design, to allow for improved ventilation. Easy to implement if low cost designs are completed and distributed.
Reduce cost of environmental degradation and improve productivity associated with the <u>manufacturing sector</u>, and strengthen sector competitiveness	<ul style="list-style-type: none"> • Implement urban air pollution control interventions, including (i) emissions control from stationary sources; and (ii) promote cleaner production. • Develop a Clean Energy Action Plan. 	
Reduce cost of environmental degradation and improve productivity associated with the <u>transportation sector</u>, and strengthen sector competitiveness	<ul style="list-style-type: none"> • Implement urban air pollution control interventions, including (i) reducing sulfur in gasoline; (ii) provision of fiscal incentives to promotion of less polluting vehicles; and (iii) promotion of non-motorized means of transportation. 	<ul style="list-style-type: none"> • Harmonize urban development, air quality management, and transportation plans in Mexico City. • Expand rapid transit systems.

Reduce cost of environmental degradation and improve productivity associated with the tourism sector, and strengthen sector competitiveness

- Develop strategy for improving environmental quality, including improving quality of water at tourist sites and water bodies used for recreational activities.
- Design and implement policies to increase revenues from economic activities.
- Increase market niche for high-end tourism activities; and support small and medium-scale industries.

Reduce cost of environmental degradation and decrease vulnerability to natural disasters

- Build capacity in disaster prevention by developing guidance materials, training and technical assistance.
- Establish a registry for occurrence of natural disasters
- Incorporate disaster prevention in land use plans; urban drainage improvements; resettlement of populations from areas prone to natural disasters.
- Strengthen regulations prohibiting human settlements in areas prone to risk of natural disasters.
- Broaden design and implementation of information and early warning systems to include floods and severe storms.
- Enhance funding for disaster prevention and for preparation of vulnerability-reduction plans, through the National Fund for Prevention of Natural Disasters (FOPREDEN).
- Establish integrated disaster information system that integrates- according to priority identified through risk assessment – oceanographic, hydrologic, climatologic and seismographic and other relevant data systems.
- Conduct risk assessments and use to guide allocations of financial, human and technical resources for disaster prevention and management activities.

Reduce vulnerability to impacts of climate change that may affect diverse sectors of the economy.

• Develop a National Climate Change Adaptation Strategy.

Strengthen forest and protected areas conservation and management

- Identify required policy and program reforms, given unique land tenure structure.
- Reorient existing programs to support community forestry activities for conservation and sustainable use of forest and
- Implement policy reforms in existing public programs, with an emphasis on moving from “subsidy” to “seed capital” approaches, evolving current ad hoc technical assistance/ extension approaches into coherent, efficient and

wildlife resources.

- Assess representativity of Protected Natural Areas System and coverage of biodiversity hotspots. Prioritize areas for expansion under Protected Natural Areas System.
- Align public programs with Protected Natural Areas so that declaration/ protection of a Natural Protected Area is a benefit to local population.
- Build on successful development experiences of Community Protected Areas and decentralized biodiversity conservation.
- Expand use of market instruments and fiscal incentives to reward positive externalities generated by sustainable use and conservation efforts.

integrated system, and community-based approaches.

- Implement decentralization strategy with transfer of required instruments for Natural Resource Management use and conservation.
- Implement program for strategic engagement between ejido/ community sector and private investors (e.g., forestry, ecotourism, Protected Areas Trust Funds) to promote private investment/joint ventures and move beyond ejido/community sector dependence on public subsidies.
- Consolidate sustainable natural resource management efforts by communities, private owners, subnational governments and CONANP / CONAFOR / SAGARPA / CDI / SEDESOL.
- Provide fiscal incentives (i.e., madera legal).

Improve solid and hazardous waste management

- Develop regulations for the General Law for Prevention and Integrated Management of Wastes (*Ley General para la Prevención y Gestión Integral de los Residuos*).
- Utilize federal/state subsidies as an incentive to partially finance investment costs for the construction of regional sanitary landfills to support the transition from open dumps to sanitary landfills. Subsidies should coincide with a reorganization of the sector (e.g., regulatory framework, regionalization, inter-municipal agreements, cost recovery, etc.)

- Conduct an analysis to determine the main sources of emissions of POPs and carry out an inventory of pollutants generated as a combustion byproduct.
- Implement a gradual phaseout of PCBs.

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Annex 1: Recommendations from 2000 Policy Notes and Implementation Progress

Issue	Recommendation	Mexico's Progress in implementing recommendations
<p>Environmental degradation</p>	<ul style="list-style-type: none"> • Implement policies and incentives that reflect scarcity of natural resources. 	<p><u>Tourism</u></p> <ul style="list-style-type: none"> • Fiscal framework reformed to allow for earmarking of revenues generated by user fees for maritime activities, protected areas, and whale watching, with provisions for reinvestment in the income-generating activity. • Passage of General Law for Prevention and Integrated Waste Management promotes adequate waste management at tourist sites. <p><u>Energy</u></p> <ul style="list-style-type: none"> • Approval of fiscal provisions for accelerated depreciation of renewable energy capital, to increase energy generation from renewable energy sources. • Development of mandatory standards for equipment, sectoral programs, implementation of methodologies for measuring and monitoring energy efficiency baselines by sector; and business models and contract forms for third-party delivery of energy efficiency measures. • Clean Development Mechanism office established. <p><u>Water</u></p> <ul style="list-style-type: none"> • CONAGUA developed the National Water Program 2001-2006, which describes investments required to attain a sustainable scenario by 2025. One of the key objectives of the program is to increase efficiency of water use in agriculture. • Legal reforms implemented to increase incentives for water conservation and increasing resources for investments and management through increase and rationalization of water fee collection. • Passage of amendments to the National Water Law, which included new mandates for decentralization of water resources management functions to Water Basin Authorities. • Implementation of a measurement system for water use by parties that have water rights. • Adjustment of regional water programs based on actual water availability. • Establishment of schemes to ensure that water users comply with their water rights and discharge obligations, and that water rights are consistent with water availability. • Implementation of a program to increase percentage of wastewaters that are treated.

		<p><u>Forestry</u></p> <ul style="list-style-type: none"> • General Law for Sustainable Forestry Development enacted in 2003 and regulations were developed. Among the objectives of this law are the protection, sustained provision, and valuation of environmental goods and services.
	<ul style="list-style-type: none"> • Remove, in all sectors, explicit and implicit subsidies on water, energy, and agricultural commodities. 	<ul style="list-style-type: none"> • Publication of electricity subsidies in individual electricity bills, as a first step in addressing distortions in the electricity sector.
Property rights for natural resources	<ul style="list-style-type: none"> • Provide clear and well-regulated property rights for natural resources. 	<ul style="list-style-type: none"> • Progress has been made in promoting the functioning of markets, notably water and land. • Property rights for forests and fisheries still need to be strengthened. • General Law for Sustainable Forestry Development enacted in 2003 and regulations were developed. Among the objectives of this law are the protection, sustained provision, and valuation of environmental goods and services.
Environmental degradation and poverty	<ul style="list-style-type: none"> • Break vicious circle of environmental degradation as a short term survival tool, in particular, reduce vulnerability of the poor to natural disasters 	<ul style="list-style-type: none"> • Natural disasters continue to be an important contributor to the cost of environmental degradation in Mexico.¹⁶³
Institutions and environmental management	<ul style="list-style-type: none"> • SEMARNAP¹⁶⁴ should be given power to operate as a “function” across ministries, rather than alongside them in a vertical “silo” basis. 	<ul style="list-style-type: none"> • Through the implementation of the government’s environmental mainstreaming program, <i>Agenda de Transversalidad de las Políticas Públicas Ambientales</i>, SEMARNAT¹⁶⁵ has been able to work across ministries, notably energy, tourism, water, and forestry. • Intersectoral technical working groups (ITWGs) have been established, which are designed to develop an integrated program and its accompanying institutional and financial mechanisms aimed at guiding and monitoring the incorporation of environmental concerns in key public sector decision making processes with regard to the relevant sector covered by the respective ITWG. The ITWGs have been established for the energy, tourism, water, and forestry sectors. The ITWGs

¹⁶³ Available statistics indicate that between 1980 and 1999, natural disasters accounted for US\$10.3 billion between 1980 and 1999. Bitar, Daniel (2000). “Características del impacto socioeconómico de los principales desastres ocurridos en México, en el período 1980-99”. CEPAL.

¹⁶⁴ Secretaría de Medio Ambiente, Recursos Naturales y Pesca.

¹⁶⁵ Secretaría de Medio Ambiente, Recursos Naturales.

		play a key role in defining environmental agendas in these sectors by using intersectoral coordination to approach cross-cutting environmental issues. SEMARNAT is a member of all of the ITWGs.
	<ul style="list-style-type: none"> • Increase proximity between policymakers and users through decentralization of environmental responsibilities and definition of clear distribution of functions among the three levels of government. 	<ul style="list-style-type: none"> • Four laws were amended to facilitate decentralization of federal environmental functions in areas including conservation of soil, flora, fauna and forest resources, impact assessment administration and coastal management. • State eligibility criteria and procedures for decentralization were developed. • Decentralization plans prepared and publicly disclosed in more than 20 states. • Environmental Institutional Development Program (PDIA), a pilot grant-matching scheme, was established to fund capacity building in states that had prepared decentralization plans. • Economic instruments were developed to increase funding for environmental management at the federal and subnational levels.
	<ul style="list-style-type: none"> • Increased information and communication. 	<p><u>Tourism</u></p> <ul style="list-style-type: none"> • Implementation of Integrated Program for Clean Beaches to monitor and publicly disclose water quality data for Mexican beaches. • Public disclosure of amount of funds collected from user fees for protected areas. <p><u>Water</u></p> <ul style="list-style-type: none"> • Water rights registry made publicly available. <p><u>Environmental management processes</u></p> <ul style="list-style-type: none"> • Public access to information on SEMARNAT's environmental management processes facilitated through provisions of <i>Ley Federal de Transparencia y Acceso a la Información Pública Gubernamental</i>; <i>Ley General del Equilibrio Ecológico y Protección al Ambiente</i>; and <i>Reglamento de Impacto Ambiental</i>. • Public disclosure of state decentralization plans that are approved by SEMARNAT.
Environmental mainstreaming	<ul style="list-style-type: none"> • Integrate sustainable development perspective within the context of sectoral policies and programs. 	<ul style="list-style-type: none"> • Through government's environmental mainstreaming program, <i>Agenda de Transversalidad de las Políticas Públicas Ambientales</i>, SEMARNAT¹⁶⁶ has been able to work across ministries, notably energy, tourism, water, and forestry.
Environmental mainstreaming in industry	<ul style="list-style-type: none"> • Rationalize and simplify regulations. 	<p><u>Tourism</u></p> <ul style="list-style-type: none"> • Certification scheme developed in tourism sector to recognize responsible

¹⁶⁶ Secretaría de Medio Ambiente, Recursos Naturales

	<ul style="list-style-type: none"> • Continue with <i>Licencia Ambiental Unica</i>.¹⁶⁷ • Further enhance regulatory enforcement by focusing on environmental results. • Build an environmental culture through education and targeted training. • Use of environmental management systems to achieve environmental improvements. 	<p>environmental performance by tourist facilities based on established environmental indicators of sustainable tourism.</p> <ul style="list-style-type: none"> • Development and use of indicators and benchmarks to measure good environmental performance in tourist facilities and destinations. <p><u>Environment</u></p> <ul style="list-style-type: none"> • SEMARNAT evaluated the <i>Licencia Ambiental Unica</i> and began implementing it under new guidelines, and decentralized the scheme in two states. <p><u>Energy</u></p> <ul style="list-style-type: none"> • Implementation of environmental management systems to reduce contamination by PEMEX and Federal Electricity Commission caused by gas flaring from oil and gas production, sulfur dioxide emissions associated with electricity generation, and waste discharges into water bodies.
Environmental mainstreaming in the energy sector	<ul style="list-style-type: none"> • Promote fuel switching from fuelwood to gaseous fuels for stationary sources to reduce emissions of fine particulate matter. • Optimize linkage of fuel quality to vehicle technology for mobile sources. • Rural electrification. • Establish independent monitoring system for fuel quality. • Implement vehicle inspection and maintenance systems. 	<ul style="list-style-type: none"> • Achieved reduction of sulfur content from 500ppm to 300ppm in Premium gasoline used in the three largest cities (Guadalajara, Monterrey, and Mexico City Metropolitan Area).

¹⁶⁷ The *Licencia Ambiental Unica* (LAU) scheme was implemented to streamline under one umbrella all environmental licensing requirements at the federal, state, and municipal levels.

Chapter 7: HUMAN CAPITAL AND SKILLS FOR A COMPETITIVE LABOR MARKET

Erik Bloom and Gladys Lopez-Acevedo
with inputs from Andreas Blom, Andrew Mason, and Alexis Roach

Mexico is the largest and richest economy in Latin America and one of the poorer OECD member countries. Within Mexico, there are also two economies—one that resembles other OECD member countries and one that has more in common with low income countries. Poor labor productivity growth has led to stagnated labor income. Mexico needs to improve its current education system to increase its productivity. Despite a major investment in recent years to improve the coverage of the education system, enrollment at the secondary and tertiary level is below that of peers. In addition, the quality of learning is low, limiting the possibilities of Mexican workers. Inequality in education is the highest in the OECD. Improving the level of adult education, including formal and on-the-job training, also play an important role.

To consolidate the gains made in education, Mexico should continue to strengthen its decentralization and continue to expand coverage in preschool and upper secondary school. Mexico does not compete well internationally in terms of quality and needs to focus more on improving the quality of students learning. Reforming Telesecundaria should be a top priority as should improving the quality of universities. Teachers are at the center of attempts to improve quality and access. To increase access to the formal sector, society should carefully examine which work-related benefits truly benefit workers and identify ways to streamline and reform these benefits. The government should redouble its efforts to increase access to lifelong learning and technical education for adults.

I. Overview

1. **Mexico sits between two worlds.** Mexico is both one of the richest countries in the Latin America and Caribbean Region and one of the poorest member countries of the Organization for Economic Development and Cooperation (OECD). Likewise, its population is also divided. While a significant proportion has income and education levels similar to that of the other OECD countries, the majority of Mexicans are closer to the Latin American averages.

2. **Mexico's ability to compete in both traditional and new markets is diminishing.** Traditionally, Mexico relied on its low cost labor to produce goods for the North American market, complemented by natural resource exports and remittances. However, since the economic recovery of 1998 unit labor costs have increased with higher wages and slow productivity growth. Mexico has seen its international competitiveness decline in the past decade. In 1998, the *Global Competitiveness Report*

ranked Mexico as 34th in the world.¹⁶⁸ By 2005, this had declined to 55th place. Since 2000, Mexico has lost an estimated 270,000 industrial jobs. Mexico's trade deficit with China increased driven by low cost imports. Mexico needs to focus more on adding value to its production and moving from a low-cost labor-based economy to a knowledge-based economy that exploits the new global economic environment.¹⁶⁹

3. **Mexico has seen poor performance in increasing its economy's productivity.** Unit labor costs in other OECD countries have steadily decreased due to increases in productivity. For a mature economy like Mexico's, increasing productivity is the main engine of economic growth.¹⁷⁰ In the 1990s, productivity growth in Mexico was a low 0.4 percent per year, below the regional average of 0.7 percent and well below of the 1.1 percent observed among the seven largest economies in the region. Mexico only outperformed Colombia and Venezuela. In the 1960s and 1970s, Mexico regularly saw annual productivity gains above 1.5 percent.¹⁷¹

4. To adapt to the changing global environment, the country needs to invest more and better in its people. Mexico lags behind other upper middle income countries in Europe and Asia in the education of its population. Indeed, Mexico lags behind several other Latin American countries with lower levels of income, as shown in Table 1.

Table 1: International Education Levels

<i>Country</i>	<i>Gross National Income, per capita US\$</i>	<i>Secondary Net Enrollment Rate, % of age group</i>	<i>Population with tertiary education, % of age 25-34</i>	<i>Average Education Attainment, population age 25-64</i>
Viet Nam	\$480	65	n.d.	n.d.
Colombia	\$1,810	54	n.d.	n.d.
Thailand	\$2,190	n.d.	18	n.d.
Brazil	\$2,720	72	7	n.d.
Malaysia	\$3,880	69	16	n.d.
Chile	\$4,360	79	17	n.d.
Slovak Republic	\$4,940	87	13	12.4
Poland	\$5,280	91	20	11.6
Mexico	\$6,230	60	19	8.7
Hungary	\$6,350	92	17	11.7
Czech Republic	\$7,150	89	12	12.4
Republic of Korea	\$12,030	100	47	11.9
Greece	\$13,230	85	24	10.5

Secondary net enrollment rate gives the percentage of secondary aged children who are enrolled in secondary school. n.d.= No data available
Sources: World Bank, 2005. OECD, 2006.

5. Table 1 shows some worrying trends. Compared to other OECD countries, **Mexico overall has one of the lowest levels of education achievement.** The average Mexican between the ages of 25 to 64 has less than nine years of schooling, compared to

¹⁶⁸ Also see chapter 3 of this report for more information on competitiveness and the investment climate.

¹⁶⁹ Diane Farrell, Antonio Puro, and Jaana Remes. 2005.

¹⁷⁰ These estimates are based on calculations of the total factor productivity. This looks at the portion of GDP growth that cannot be explained by increments in the factors of production (capital and labor) alone.

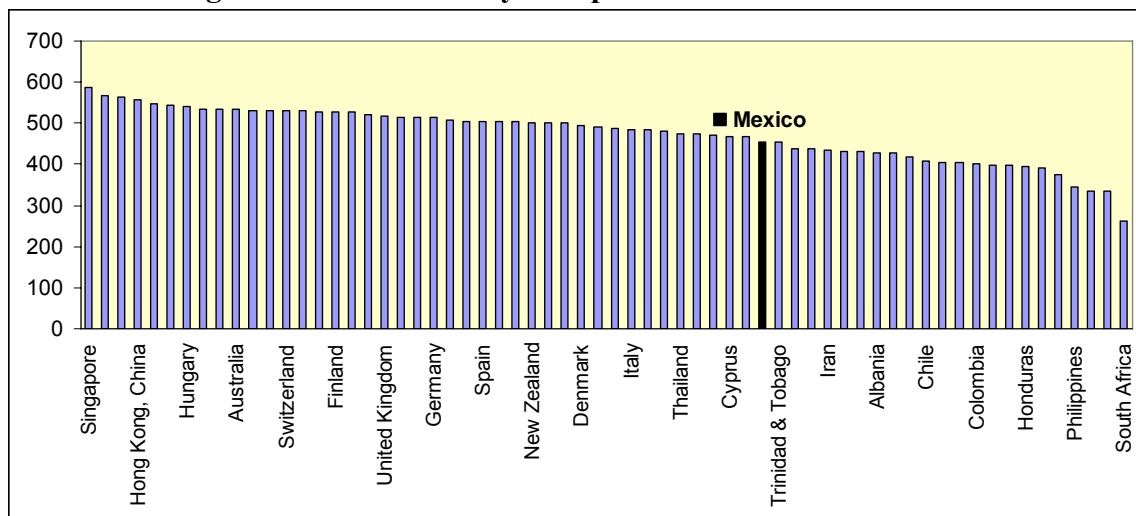
¹⁷¹ Loayza, Fajnzylber and Calderón (2005)

a level of 12 years in the middle income OECD countries. Beyond the average level, it is important to look at the current enrollment rates as indicators of the future education level. Mexico lags many of its comparator countries in secondary enrollment. If current trends continue, Mexico will increasingly find itself lagging in average education.

6. Interestingly, Mexico has a similar level of tertiary education with other middle income OECD countries. This is an indication of the country’s high level of education inequality. Higher income groups in Mexico have substantially higher levels of education than the rest of the population. This contributes to the high level of income inequality in Mexico and limits the pool of skilled workers, ultimately limiting the potential of Mexico to compete with other knowledge-driven economies.

7. **Education attainment is only one important dimension. The quality of the education system—what students learn in school and their ability to apply this knowledge in practical settings—is equally important.** The OECD has developed an internationally comparable test aimed at fifteen year old students known as the Program for International Student Assessment or PISA. These results, in Figure 1, show that Mexico falls below many other middle income countries and has the lowest scores of OECD member countries. This is particularly worrying because Mexico has a lower level of enrollment than many other countries; presumably many poorly performing students have already dropped out of the system.

Figure 1: Internationally Comparable Achievement Scores



World Bank estimates based on the most recently available PISA score (available at www.oecd.org/pisa). Scores from some countries imputed from similar student assessments. Source: Cotlear, 2006.

8. Mexico has a highly unequal income distribution. Using the Gini index as an indicator, it has one of the most unequal distributions among OECD countries (World Bank, 2006)¹⁷². The difference in income has been largely driven by inequality in

¹⁷² The Gini index is a widely used measure of inequality. Mexico has the highest Gini score among OECD countries at 0.49. In contrast, Turkey has a score of 0.38 and the United States 0.39. Mexico has average income inequality for Latin America

education levels and changes in the returns to education (Lopez-Acevedo, 2006). As Mexico increasingly competes internationally, the rates of return for higher education will increasingly rise compared to lower levels. Given Mexico's already unequal distribution of education, this tends to exacerbate the already unequal income distribution.

9. The low level of education and the high inequality does not make Mexican labor attractive to investors, particularly factoring in the high labor costs and business risks. **Mexico is a negative outlier: its education indicators—both quality and enrollment—are below what are expected for a country at its level of development.**

10. **Low education means a significant number of workers lack the basic knowledge and skills to compete in the job market.** Essentially, they need a second chance to gain the education that they were not able to receive before. This requires a focus both on basic skills to compensate for the lack of basic education and on specific job-related skills needed to compete in the labor market.

Box 1: Globalization and Education—The Example of Uruguay

Like Mexico, Uruguay is a middle income Latin American country. After a long period of adjustment, Uruguay has a stable economy. Unlike Mexico, the Uruguayan economy is small and has always depended on international commerce. Given its location, Uruguay had long served as the financial center for the Southern Cone of South America. The service sectors, such as banking and tourism, bring significant value added to the Uruguayan economy. Uruguay has traditionally also been a major exporter of agricultural products.

Recently, Uruguay has started to enter the global information technology (IT) market. Uruguay is now home to the largest outsourcing operation in Latin America. In addition to providing service to other Latin American markets, it also serves the North American market. This requires a high level of competence in English in addition to knowledge of IT. In addition, Uruguayan engineers are members of international teams developing and testing software.

Central to Uruguay's success is a high quality and equitable education system. Uruguay has long used national student assessments to detect learning deficiencies. Teacher training is built around reducing these deficiencies and improving student-teacher interactions. Given Uruguay's small economy, foreign language skills have long been emphasized. Uruguay has learned how to take advantage of its natural advantages, such as its geographic position, along with its relatively low labor costs and its long term investment in human capital. This allowed Uruguay to add value to its role in the global economy and to move beyond its traditional exports.

11. **This Policy Note looks at the nexus between education and the labor market in the context of the need to improve its international competitiveness and to increase labor productivity.** It argues that Mexico must proceed on two fronts simultaneously. First, Mexico needs to improve its educational coverage, particularly in preschool and at the upper secondary level and provide young adults with a chance to

catch up and make up lost education. Second, Mexico needs to improve the quality and relevance of its education system and close the quality gap with other countries. The Policy Note aims to promote debate on actions to improve Mexico's international competitiveness. Mexico has achieved much in the past fifty years and without significant action, many of these gains will be eroded.

II. The education system and full enrollment

A. Policy Issues

12. **The education sector plays a major role in the economy.** The gap between Mexico and other countries also appears to be growing, with Mexico falling increasingly behind, limiting Mexico's international competitiveness. Education is also the largest section of the federal and state budgets and the education sector is the single largest employer in the country. Unless Mexico reduces the gap in the education system, it will not meet its goals for economic growth and development. With the importance of the education sector, many stakeholders are willing to fight over its future direction. Clearly, the stakes in the education sector are large.

13. **Total public spending on education in 2005 was MX\$448 billion (including preschool and tertiary education), corresponding to 5.3 percent of the GDP.** Of this amount, 79 percent originated at the federal level. In 1990, the federal government spent 1.6 percent of GDP on basic education (including preschool and upper secondary) compared to 3.0 percent in 2000 and 3.1 percent in 2005. Total state and municipal spending on education increased in the same time period from 0.7 percent of the national GDP in 1990 to 1.1 percent in 2005. These estimates do not include other significant components of education spending. Staff from the education sector (particularly teachers) account for a majority of the members of the Institute for Social Security and Services for State Employees (*Instituto de Seguridad y Servicio Sociales para Trabajadores del Estado* or ISSSTE)¹⁷³, which is the second largest social security institute. In addition, a significant amount is spent on demand-side incentives for the education sector through *Oportunidades* and other programs.

14. **Despite the significant increase in spending on education, there are still major challenges.** While there has been an increase in the number of students, there are significant gaps in coverage. More importantly, quality does not seem to have increased. **Closing the education gap can be achieved by better spending of existing resources.**

15. **As in most education systems, the bulk of spending is for teachers' salaries, however the proportion in Mexico spent on teachers (around 90 percent) is extremely high by international standards.** Likewise, teachers have received most of the increase of education spending. However, unlike in other countries, this increase in pay was not conditional on any significant improvement in productivity or increase in education quality. The education sector has little control over the placement of teachers,

¹⁷³ Public school teachers accounted for around 40 percent of government workers.

essentially limiting its ability to hire and deploy teachers where they are most needed.¹⁷⁴ While in the past, teacher pay was probably not adequate and underperformed the market, there is evidence now that teachers are paid quite well compared to other workers with similar levels of education and experience.¹⁷⁵ Indeed, as a proportion of the national GDP per capita, Mexican teachers are the highest paid among OECD countries. Given the strong emphasis on teachers, there are few resources available for complementary inputs that play a major role in improving quality.

16. The Mexican education system is divided into several subsectors. Basic education consists of the preschool (*preescolar*), primary (*primaria*), and the lower secondary (*secundaria*) levels. Education is obligatory through the lower secondary level. Upper secondary (*educación media superior*) education is a separate subsector as is the tertiary level. The system recognizes both “school-based education” (*escolarizada*) and “non-school based education.” Although most education is financed and provided by the public sector, Mexico has a large and diverse private education sector at all levels.

17. Inequality is a major concern in the Mexican education system and prevails in all areas. Inequality has a strong geographic and ethnic element to it, as students from poor states and indigenous households are often at a severe disadvantage in the school system. Even within states, students from rural or less developed areas tend to be at a significant disadvantage to other students. This inequality is then often institutionalized. Students from low quality primary schools have less chance of success at higher levels and often drop out.

18. Both the states and the federal government play a major role in the education sector. In 1992, Mexico began to decentralize the education system. Prior to 1992, Mexico operated a dual public education system, with some schools operated by state governments and other schools operated by the federal government. In 1992, all of the federal primary and lower secondary schools were transferred to the states, along with the teachers.¹⁷⁶ In most states, the federal system was substantially larger than the state system although a few states did have a relatively large system.¹⁷⁷ The federal government covers about 88 percent of the financing for “federal teachers” and for some operational costs. In the 1991-1992 school year, more than 75 percent of primary students were in federal schools. This declined to less than 10 percent the following school year. Table 2 summarizes the type of attendance.

¹⁷⁴ Most teachers are hired and assigned through the teachers’ union, the National Union of Education Workers (*Sindicato Nacional de Trabajadores de Educación* or SNTE). While this sort of arrangement is “common” in Mexico, it is quite unique in the international sphere.

¹⁷⁵ Gladys Lopez-Acevedo, 2000.

¹⁷⁶ Schools in the Federal District were not included in the decentralization.

¹⁷⁷ 26 out of 31 states had a state system, that account from between 5 percent to 55 percent of total enrollment.

**Table 2: Percentage of enrollment, per type of school
2004-2005 School Year**

Type of School	Primary ^a	Lower Secondary ^b	Upper Secondary ^c
Federal	6%	7%	28%
Transferred Federal ^d	63%	57%	
State	23%	28%	37%
Autonomous ^e		0%	15%
Private	8%	8%	21%

a- Ages 6 to 12

b- Ages 13 to 15, corresponding to *secundaria*.

c- Ages 16 to 18, only *bachillerato*.

d- There are no transferred institutions at the upper secondary level

e- There are no autonomous institutions at the primary level and a very limited number (less than 0.1 percent) at the lower secondary level.

Source: SEP, 2006

19. **The 1992 decentralization is incomplete.** Although all teachers are technically paid by the states, “federal teachers” still negotiate directly with the federal government and reach a national agreement on wages, which the federal government transfers to the states. States that had a large state system are effectively punished by the requirement that they have to “normalize” the wage of “state” teachers with “federal teachers.”

20. **At the upper secondary level, the federal and state governments continue to maintain and operate parallel systems.** The federal government has not transferred any of its schools to the states. In addition, as can be seen in Table 2, there are a significant number of autonomous schools. These schools are generally operated by autonomous state universities but follow national curriculum and salary standards established by SEP.

21. **Total state spending on the education appears to be random and unrelated to total spending or federal transfers.** In 2002, Oaxaca and the Federal District had no state spending on education, while in Baja California, state spending accounted for around 40 percent of total education spending. Baja California Sur has a similar level of total spending to Baja California but state spending accounts for less than 5 percent of total spending. In short, the system does not give states financial incentives to be active partners in the education sector. They receive a budget based on the assignment of “federal” teachers and the salaries of these teachers account for almost all of education spending and are set centrally.

Box 2: Ethnicity and Education: A Complicated Picture

Mexico is very much a multi-ethnic country. Around 11 percent of the population belongs to an indigenous group, which are spread throughout the country, particularly in rural areas. Indigenous households tend to be younger and larger than the average household in Mexico. They are also significantly poorer and tend to live in rural areas, particularly in the south of the country. In general, this population speaks an indigenous language either exclusively or with Spanish. However, a significant minority self-identify as indigenous and are monolingual Spanish speakers. Women and the elderly are the most likely to speak only an indigenous language.

Mexico first introduced bilingual education informally in the 1920s and formally in 1951. Within the Secretariat of Education, the General Directorate of Indigenous Education (DGEI) supervises around 20,000 schools at the preschool and primary level, enrolling a total of 1.3 million students.

Quality remains a serious issue. As many as half of teachers in indigenous schools were unaware of the government's bilingual education policies. Around 20 percent of teachers cannot use the local indigenous language and in some cases, teachers are effectively illiterate in Spanish. In general, indigenous children do worse on national standardized tests, even controlling for other factors such as community characteristics. However, it appears that enrolling in a bilingual school may dampen some of this negative impact.

*Source: Martha Hernandez and Heather Layton. 2006. *Determinants of Indigenous Schooling Achievements*.*

22. **This said, there are clear examples of states taking advantages of the autonomy offered by decentralization** Colima and Aguascalientes have been leaders in efforts to improve the quality of education. Both have introduced student assessments and have taken steps to improve teacher training. Colima has also been quite successful in strengthening local school authorities in their support and administrative functions. However, both of these states are small, have relatively homogenous populations, and have income levels above the national average. Neither of the states had a significant state education system which they had to integrate with the federal system. On a different front, Quintana Roo and Nuevo Leon have both been pioneers in engaging the private sector and increasing parental participation in the education system.

23. **The federal government still finances the payroll of transferred school teachers and new hires are placed either on the “federal payroll” (albeit administered by the state) or in the state payroll.** Although salaries and benefits are essentially the same, teachers in many states are in one system or the other, which complicates transfers and limits the authority of states in education.

24. **Private education is available at all levels and is most prevalent at the upper secondary level.** This increase in private enrollment reflects some students switching from the public education system to private education prior to entering the university. It also, however, is likely to be the result of a higher drop out rate in public lower secondary schools and higher advancement rates for students in private schools.

25. **Mexico has a well-developed early childhood development (ECD) system focused on the poor.** The education sector plays a major role in ECD. Pre-school, usually for children aged three to five, is an important first step for children as they enter the formal education system. It serves as a transition from the home environment to the school environment, which is difficult for many children. It also contributes to physical, social, and language development of children. For children coming from indigenous backgrounds this provides the first introduction to the Spanish language.

26. **Mexico is gradually making preschool education obligatory and is currently in the process of expanding coverage for three years.** Among five years old children, the enrollment rate is around 90 percent and it is 75 percent for four year old children. In both cases, most of the “easy” population in this age group is probably already in preschool and the marginal cost of covering new children is high. According to SEP, the states with the lowest enrollment of five year olds are Hidalgo (72 percent), the state of Mexico (72 percent)¹⁷⁸, Jalisco (77 percent), Chiapas (80 percent), and Oaxaca (82 percent). With the exception of the state of Mexico and Jalisco, these are all relatively poor states with isolated populations. The low coverage in these states is likely to be due to both demand and supply factors and will require both incentives for households and increased supply.

27. **Enrollment for three year olds is significantly lower.** Although national enrollment rates have increased significantly from around 10 percent to 25 percent in just one decade, the gap in coverage is large. The poorer states tend to have higher enrollment rates than average. For example, in Chiapas the gross enrollment for three year olds is estimated to be around 60 percent and close to 45 percent in Oaxaca, compared to the national average of 25 percent. This reflects the positive impact of government programs that have targeted poor children. However, given the lower level of enrollment for four and five year old children in poor states, it would appear that these states have been successful in reaching “easier” children and have not yet made much inroads with the more difficult population.

¹⁷⁸ Enrollment rates are most likely higher in the State of Mexico due to the enrollment of some children in the Federal District.

Box 3: Early Childhood Development: A High Payoff Investment

*Numerous international studies have shown the important contribution that investing in children early in their lives can make. In short, targeted, early investment in cognitive and motor skills development and in basic nutrition and health will lead to significant, long term returns and help prepare children for school and work. The first five years of life are the most critical and formative as this is when the brain matures and personality is developed. It is also when children learn the social pattern of bonding with their families and with the community. There is a strong synergy among health and nutrition, and physical and cognitive development. Failure to invest in one critical area of early childhood development will lower a child's capacity to grow in other areas. **A well-designed ECD program is one of the best long-term investments a country can make.***

*Many children are caught in a vicious circle of poverty. Poor households cannot invest in their children's human capital, guaranteeing that the next generation is unprepared for the demands of the global economy. This inequality starts at birth, as the children of the poor have access to less health care and less pre-school and motor development activities. **By the time that they enter school, at the age of five or six, poor children are at a major disadvantage to other children and are unlikely to be able to close the gap.***

28. **Most preschool coverage in Mexico is public.** In the 2004-2005 school year, around 87 percent of preschool students attended a public preschool. Despite the small number of private preschools, this sector has been the fastest growing, with the number of private schools almost doubling in the past decade. While in wealthier areas like Baja California and the Federal District, private preschool enrollment accounts for 20 to 30 percent of the total enrollment, in poorer states, private enrollment accounts for less than 5 percent of the total.

29. **Day care centers (*guarderías*) are also an important resource in facilitating mothers' entry and reentry in the workforce.** Traditional preschools account for around 86 percent of total preschool enrollment. The children of some formal sector workers (particularly in public sector) attend Child Development Centers (*Centros de Desarrollo Infantil* or CENDI). These offer high quality preschool programs at a relatively high cost per student, paid by the worker's social security institute. Nationally, 2 percent of preschool-aged children attend CENDI. They account for almost 10 percent of the enrollment in the Federal District. There are probably private *guarderías* whose coverage is not fully measured by official statistics.

30. **Indigenous preschools enroll about 8 percent of preschool students.** In Yucatán, Oaxaca, and Chiapas, indigenous preschools account for more than 20 percent of total preschool enrollment. These schools are officially bilingual, however, many teachers do not have adequate knowledge of the local language, limiting their effectiveness. Community preschools, which rely on local contract teachers, cover around 3 percent of preschool students, particularly in the small rural communities. Hidalgo is the only state with community preschool enrollment over 10 percent.

31. **Increasing Coverage of Basic Education.** Mexico has a large basic education system covering approximately 24.1 million students in the 2004-2005 school year.¹⁷⁹ The government, at all levels, plays a lead role in the organization, provision, and financing of education. Mexico has seen significant improvement in the education status of its population in the past two decades, with large increases in coverage at the primary and lower secondary levels. This increase in primary enrollment is starting to put pressure on lower and upper secondary levels and ultimately on the tertiary level. Table 3 shows the growth in the enrollment rates in Mexico over the previous 15 years.

Table 3: Percentage of population attending school

Year	Primary ^a	Lower Secondary ^b	Upper Secondary ^c
1990	93.5%	67.1%	35.8%
1995	93.2%	72.7%	39.4%
2000	92.9%	81.6%	46.5%
2002	93.1%	85.6%	48.9%
2003	93.0%	87.0%	51.5%
2004	92.9%	88.2%	53.5%

a- Ages 6 to 12

b- Ages 13 to 15, corresponding to *secundaria*.

c- Ages 16 to 18, including *profesional medio* and *bachillerato*.

Source: SEP, 2006

32. **In both primary and lower secondary education, Mexico has achieved coverage of around 90 percent.** Initial enrollment in primary schools has been universal since the 1970s. More students finish the primary level. The 1990s saw a sharp increase in enrollment in lower secondary and more students are finishing lower secondary and moving on to upper secondary schools. The drop out rate at the primary level was around 1.7 percent in the 2004-2005 school year. Michoacán had the highest drop out rate of 4.1 percent, followed by Chiapas with 3.4 percent, Guanajuato with 3.1 percent, and Guerrero with 2.7 percent. Guanajuato's high rate is a relatively recent development, while the other states have traditionally high drop out rates. Drop out rates are substantially higher in lower and upper secondary school. In the 2004-2005 school year, the drop out rate was 7.1 percent for lower secondary students and 17.0 percent for upper secondary school. Michoacán stands out as having a high drop out rate in all levels.

33. **The conditional cash transfer (CCT) program *Oportunidades* and its predecessor, *Progresá*, played a major role in increasing enrollment and in preventing students from dropping out.** The program offered a significant monetary incentive for children in poor households to stay in school. In 2004, *Oportunidades* covered 5 million households through out the country.¹⁸⁰ The program has been quite successful in reaching the poorest families and in influencing their behavior. This subsidy lowers the cost of education, which in Mexico is the opportunity cost of not working.

¹⁷⁹ Here basic education is defined as primary (*primaria*), lower secondary (*secundaria*) and upper secondary (*educación media superior*) education, covering twelve grades. This differs from the official Mexican definition which covers pre-school, primary, and lower secondary education. This analysis largely focuses on "school-based education" (*escolarizada*).

¹⁸⁰ *Oportunidades* has recently expanded to include upper secondary students,

Studies have shown that a significant drop in participation in the labor market for boys. It also encourages girls to enter and remain in lower secondary school. At the same time, the CCT serves a social safety net, essentially eliminating the impact of income shocks on school enrollment.¹⁸¹ For many households, children serve as a “safety net” and often pulled out of school and put in the labor force in response to a negative economic shock. While this makes sense in the short run, it is very difficult for students to reenter school after a long absence, thus limiting their capacity to accumulate human capital.

34. **The increase in primary education has led to a major increase in the demand for lower secondary education in areas where traditionally there has been limited access.** This has led to a rapid increase in *Telesecundarias*. *Telesecundarias* were introduced to deal with isolated populations as a way to incorporate them into the formal education system. They incorporate televised lessons transmitted to schools through out the country. They generally require less infrastructure and fewer teachers than traditional secondary schools, thus are cheaper than traditional schools. The teacher methodology is designed for rural students and is relatively rigid. For example, the same lessons are beamed into classrooms at the same time throughout the country.

35. **Recently, however, *Telesecundarias* have accounted for a growing share of enrollment.** In the past decade, around half of new enrollees in lower secondary were in *Telesecundarias*. In the 2004-2005 school year, 22 percent of lower secondary students were in *Telesecundarias*. While this is a very economical way to increase enrollment, there is the risk that the model is being used in areas where it is not appropriate. There are an increasing number of these schools in urban areas. In many cases, these are in urban areas that were previously rural; however, this does not explain why 1.5 percent of lower secondary enrollment in the Federal District is in *Telesecundarias*.¹⁸²

36. **Tertiary Education and Adult Education.** Mexico has a significant gap with other countries both in enrollment at the tertiary level and in the average education level of the workforce. Mexico will have to overcome these two challenges to convert itself into a “knowledge economy.” Higher education often presents policy makers with a paradox. Investing in higher education is absolutely essential for global competitiveness. It is necessary to have a highly educated workforce, with technical skills. Beyond this, having a strong university system generates significant *public goods*, as universities are major centers for research and innovation. **At the same time, investing in universities tends to worsen the income distribution and favor wealthier groups.** Policy makers need to balance these two conflicting factors in order to develop a tertiary education system that responds to the needs of a country’s economy and also contributes to improving the living standards of the population.

37. **The average enrollment rate in tertiary education is 53 percent in OECD countries, compared to Mexico’s enrollment rate of 29 percent, which is the lowest among OECD countries and is only average for Latin American countries.**¹⁸³ Mexico

¹⁸¹ Alain de Janvry, Frederico Finan, Elisabeth Sadoulet, and Renos Vakis. 2004.

¹⁸² Felipe Martinez Rizo, 2005.

¹⁸³ OECD *Education at a Glance*, 2006. Estimates based on enrollment in “Type A tertiary education,” which refers to university based, non-technical course of study.

is below the level expected for a country at its level of income and development, which may impact on the country's international competitiveness. Around 31 percent of the total enrollment at the *licenciatura* level is in the private sector. The private sector has been growing significantly than the public sector. The rest of enrollment is through a combination of federal, state, and autonomous public universities.

38. **In Mexico, in 2002 only 4 percent of the poor population between the ages of 18-25 were enrolled in the tertiary level, compared to 26 percent of the non-poor population in this age group.**¹⁸⁴ Many students, especially poor students, give the lack of financing as the principal reason for not entering into tertiary education or not completing their studies. Enrollment within Mexico also has a strong geographic element to it, with enrollment rates significant highly in the north and the federal district than in the south. The national enrollment rate of the population 19 to 23 years old was 21.8 percent in 2004, compared to 44.1 percent in the Federal District, 14.5 percent in Oaxaca, 13.3 percent in Quintana Roo, and 11.9 percent in Chiapas.

39. Public education in Mexico is “free” in the sense that students do not have to pay any tuition and fees are quite low. However, the opportunity costs at this level are quite high. Many potential students are expected to provide support to their families or at the very least, support themselves. **The lack of tuition for financing public tertiary sector limits the ability of the sector to grow and meet the demand for higher education.** This demand is likely to grow as Mexico's demographic transition continues and the proportion of the population that reaches university age increases.

40. **Although Mexico has a variety of student aid and assistance programs at the state and federal level, coverage is still low.** The National Scholarship Program for Tertiary Education (*Programa Nacional de Becas para la Educación Superior* or PRONABES) gave grants to around 140,000 poor students in 2004 for an average amount of \$530. Private universities have organized a joint student loan society (*Sociedad de Fomento a la Educación Superior* or SOFES) for their students. Several states (Sonora, Guanajuato, Tamaulipas, and Quintana Roo) have organized loan programs for students in the public system. The program in Sonora is the oldest, founded in 1980, and covers around 16 percent of public tertiary students in the state. The other programs have coverage of less than 5 percent.

41. **Beyond traditional tertiary education, Mexico has significant demand for adult education, known as lifelong learning (LLL).** Mexico needs to focus on two key areas. First, adults have a large gap in education compared to other countries at the same level of development, as seen in Table 1. This ranges from literacy training to programs to provide lower and upper secondary school equivalency. Second, workers, regardless of their formal education, constantly need to update their knowledge to adapt to the changing needs of the economy. This ranges from on-the-job training offered by employers to formal courses in public and private institutions aimed at adults.

¹⁸⁴ Yoshinori Suzuki, Andreas Blom, and C. Cesar Yammal. 2006.

42. **Mexico has a significant education gap.** There are an estimated 5.9 million illiterate adults (8.2 percent of the total population). Another 11.7 million adults (19 percent) have not completed the equivalent of a six-year primary education and 14.9 million adults (24 percent) have completed primary education, but who have not completed the equivalent of a ninth grade lower secondary education, the minimum basic education level mandated in the Constitution. Inequality in adult education is quite high. Overall, the illiteracy rate was 8.2 percent in 2004, ranging from 1.8 percent and 2.2 percent in Baja California and the Federal District to 18.8 percent in Oaxaca and 20.0 percent in Chiapas. Chiapas, Oaxaca, Michoacán, and Guerrero all have average years of schooling of less than 7 years. Indigenous groups are particularly disadvantaged. This inequality is also present within states

43. **The National Institute of Adult Education (*Instituto Nacional de Educación para los Adulto* or INEA) is an autonomous organization created in 1981 within SEP that is responsible for reducing the gap in adult education.** INEA offers equivalency educational certificates for adults, using the education for life and work model, which stresses the practical applications of education in the life of workers and other early school leavers. States can also receive support from INEA to operate their own adult education programs. Several states are experimenting with CCTs to encourage adults to receive basic education and literacy training.

B. The Way Forward

44. **Mexico's administrative structure complicates efforts to improve the education system.** While most schools at the primary and lower secondary level have been transferred to the states, the decentralization process is stalled and many states are passive. In many ways, Mexico has many of the disadvantages of a centralized system and of a decentralized system with few of the advantages of either. Further work is needed to strengthen the positive aspects of decentralization to improve both the equity and efficiency of the education system.

45. **For the primary and lower secondary level, the federal government should move to end the distinction between the state and the federal systems, including human resources and school management.** Federal and state teachers should be placed in the same system and transferred federal schools should be treated as state schools. Around 12 states have already merged the two systems. The remaining states will need support to negotiate this change with their "federal" teachers and efforts will be needed to fully protect the rights of federal teachers. Gradually federal support for schools should be replaced with support for students on a capitation basis with adjustments for population density and poor populations.

46. **Further decentralization is needed for upper secondary schools and the federal government should consider transferring its upper secondary schools to the states.** Many of these schools could be transferred as autonomous institutions in order to increase the role of parent and community participation. In other cases, states will need technical support to begin supervising the upper secondary schools.

47. **The budget for education should be more transparent and include the cost of benefits, including the affiliation in ISSSTE as an expense.** Additionally, the education budget should make reference to targeted CCT programs that are primarily designed to increase enrollment.

48. **Early childhood development.** Investing in children is a good investment that brings both high social and private returns is helps physical and cognitive development and eases the transition into primary school. **The government should continue to improve access to early childhood development services.** The government should carefully analyze the decision to make preschool obligatory at the age of three and assess how this goal can be best achieved. In particular, there needs to be a debate on the cost-effectiveness of focusing new resources on expanding coverage to three year olds when coverage is far from universal for four and five years old children.

49. **Likewise, the government should explore alternative models to deliver preschool education for poor and underserved communities.** This includes promoting community schools, public-private partnerships, such as public infrastructure and private management and private enterprises with public finance for poorer students.

50. **Basic Education.** Despite significant progress in the past decade, Mexico still has a significant gap in meeting coverage gaps at the lower secondary (*secundaria*) and upper secondary (*media superior*) levels. **The government should provide support to ensure that all students finish primary school and to increase the enrollment rates in upper secondary education from 54 percent to 75 percent.** This support might included increased use of targeted CCTs to population most at risk of early drop out and reforms to make schools more flexible.

51. Although most students finish primary school, it often takes longer than expected. **Improving the efficiency of primary education should be a major goal to ensure that students move to secondary education.** This includes developing more flexible models to deal with the needs of children in the rural areas and improvements in the bilingual curriculum. Increasing the coverage of ECD will likely lead to an increase in efficiency in primary education in the medium term.

52. **Increasing coverage of upper secondary will be more difficult and requires reforms both to lower and upper secondary education.** Many states have relied extensively on *Telesecundaria* to improve the coverage at the lower secondary, often introducing them in areas where they are not inappropriate. This leaves many lower secondary students unprepared for upper secondary education. The states and SEP should review location of *Telesecundarias* and start to develop strategies to “graduate” *Telesecundarias*. Future *Telesecundarias* should be introduced in areas where they are strictly necessary.

53. **Given the success of CCT at the primary and lower secondary level, the government should continue expanding CCT at the upper secondary level.** Students at this level have many job opportunities and may find work more attractive than studying, especially in the short run. The government should explore and evaluate

different options to identify particular at risk populations and offer incentives to keep them in school. The government should explore further options for increasing CCT support for upper secondary students.

54. **Tertiary Education.** Mexico's tertiary education system is quite small for a country of Mexico's size and development. **To maintain its international competitiveness, Mexico will have to expand the coverage of tertiary education, increasing enrollment from 29 percent to 36 percent.** Public funding is a limited option, since the government does not have significant fiscal space to expand the coverage. Currently the private sector is the fastest growing segment of tertiary education and this will continue with current trends. While this does help the country increase its educational coverage, it does not address the serious equity concerns in higher education. Mexico will have to find other alternatives.

55. **The government could explore options to center financing around students.** This includes increasing grant and especially loan programs. These programs help students finance the cost of education, even in a "free system." They can be targeted to the poor and repayment can be made income contingent so the loan payments are an affordable share of the income of the graduate. Subsidies can also be provided to cover the cost of the loan prior to graduation.

56. **Mexico needs to increase its focus on closing the education gap for adults.** This should include expanded literacy training, particularly for indigenous populations and an increase in remedial primary education for those with incomplete primary school. Several states have piloted using *Oportunidades* to encourage adults (particularly mothers) to enrollment and stay in basic education courses. If this pilot is effective, the government should consider expanding it. For younger adults, between the ages 15 and 35, the greatest demand is for lower secondary education equivalence and the government should focus on this group, increasing the number of covered students by 750,000 to 1,000,000.

III. Improving Education Quality

A. Policy Issues

57. **International comparisons show that Mexico needs to improve the quality of its education to increase the country's economic competitiveness.** Figure 1, which combines results from PISA and other internationally comparable achievement tests show that Mexico's performance is relatively low. While Mexico does better than some other Latin American countries, it should be remembered that many other countries in the region have higher enrollment and lower per capita income than Mexico.

58. **Holding all things constant, studies have shown that education quality has a major impact on economic growth that probably exceeds the impact of increasing enrollment.** In a knowledge based economy, employers look not at what an employee knows (and what diplomas they possess) but also at how well they process new information. Recent international evidence shows that both quantity (the number of

years) and quality of education are important to economic growth. Education quality also brings more positive externalities to the economy.¹⁸⁵

59. **How can quality be improved?** Many factors affect the quality of education and students' capacity to learn. The international literature has emphasized the importance of the student's socioeconomic background and the education of parents as key determinants of educational outcomes. This is also the case in Mexico. However, these factors are outside the control of education policy makers. The educational system plays a big role in determining educational outcomes as well. At its heart, the contribution of the education system depends primarily on the interaction between students and teachers. Educational materials (blackboards, textbooks, good quality desks, etc.) can have a positive impact but only if teachers are well trained and well motivated.

60. **Education curriculum and the training that teachers receive should be based on how students learn; adults learn very differently than children and pedagogical techniques should adjust to reflect this.** Education that focuses on entirely on memorization of facts is unlikely to produce high quality learning. However, learning does require the memorization to some degree and it is important that the education system focus on developing basic skills at an early age.

61. One of the key functions of the national government in a decentralized system is to establish and monitor learning standards. Traditionally, SEP has focused more on education inputs, such as the design of the curriculum, regulation of teachers, and hours of teacher-student contact. While student assessments can be used as a way to "grade" students and even teachers, they play a much more important function for the education system. **Education assessments serve as a feedback mechanism, allowing the government, parents, teachers and others to monitor the progress in the education sector.** They play an essential role in providing "voice" and making decentralization and participation meaningful. This feedback is essential to help the government and the community to target its support better to the education system, to provide necessary support to teachers, students, and schools. Evaluation is also an important input in the update of curriculum and standards, allowing the education system to adjust to what students are learning.

62. **Mexico has a comprehensive education assessment system.** The education system however needs to take better advantage of this resource and develop a strong "culture of evaluation" that sees evaluation more as a tool for making course adjustments. Mexico has fully participated in the international PISA exams (2000, 2003, and 2006).¹⁸⁶ In 2002 the government established the National Institute for the Evaluation of Education (*Instituto Nacional para la Evaluación de la Educación* or INEE), an independent education assessment authority. INEE has gradually taken over student testing, allowing SEP to concentrate on administrative statistics and specialized evaluation.

¹⁸⁵ See Harry Patrinos, 2005. *Mexico: Determinants of Learning Policy Notes* for a review of the evidence. Inter-country comparisons of growth do not reflect the conditions in any particular country and the impact in Mexico may be substantially different than the average.

¹⁸⁶ Mexico is one of the few developing countries to participate fully in PISA and to share all of the results. PISA was carried out with statistical representativity at the state level.

63. **Several states have also established their own assessment systems (often on a census basis) that allow them to monitor performance in their schools.** For example, Aguascalientes is currently administering a federal test on language and mathematics to all students at the end of grades 6. The information is disseminated to teachers, schools, and local education authorities to allow them to identify in which areas learning is weak and ways that it can be improved.¹⁸⁷

64. **In theory, the National Agreement to Modernize Basic Education (*El Acuerdo Nacional para la Modernización de la Educación Básica* or ANMEB), signed in 1992 as part of the agreement to start decentralizing basic education, includes provisions to increase merit pay for teachers and to increase training for teachers.** In practice, however, it appears that the impact of ANMEB is mixed. There is some evidence that the merit pay system is associated with better performing students. However a significant part of the merit pay is also driven by experience and age, which limits the impact of the merit system.¹⁸⁸

65. **In 2002 the government and SNTE, through ANMEB, agreed in principle to carry out periodic assessments of teachers to identify teachers that need additional training and to remove teachers who lack the basic skills necessary.** This assessment is to be carried out on new teachers, who are still on a probationary employment. To date, only a few states have started testing teachers and there are no national standards for teachers.

66. **Mexico has a well established system to address inequality across states through compensatory actions.** The National Council for Education Development (*Consejo Nacional para el Fomento de la Educación* or CONAFE) was established in 1971 to implement targeted federal programs in the education sector. In the early 1990s, CONAFE started implementing compensatory programs in indigenous and disadvantaged schools. Currently around three million students are supported in compensatory programs through the country. These programs, support supply interventions and improved school based management initiatives. Evaluations suggest that these compensatory programs have been successful in narrowing the gap between vulnerable schools and better off schools, suggesting a continued role for these targeted programs.

67. **Preschool.** There is little information on the quality of preschool education in Mexico. Internationally, there is significant evidence on the benefits of early childhood education. In the United States, the Head Start Preschool Program has been shown to have a significant impact in the cognitive and social development of children, particularly children with a disadvantaged background. CONAFE is carrying out a series of impact evaluation studies on preschool programs that it supports to quantify the contribution of preschool for disadvantaged children.

68. **At the national level, Mexico has one of the lowest scores in PISA among OECD members and scores that are around average for Latin American countries.**

¹⁸⁷ Guillermo Ferrer. 2006..

¹⁸⁸ Gladys Lopez-Acevedo. 2000.

Some states, such as Colima, the Federal District, and Aguascalientes have scores that are typical of middle income OECD members.¹⁸⁹ The difference between the top performers and the bottom performers is smaller than in other countries in the region and in the OECD. Since Mexico's overall ranking is low, this can be seen as a type of "shared poverty." Enrollment in Mexico is lower than average which leads to some "cream skimming;" many of the worst students have already left the education system by the age of 15. With the increase in enrollment at the primary and lower secondary levels, this is likely to change. More "lower quality" students will stay in the education system dragging down the overall quality rating and increasing inequality.

69. **Students in private schools performed better than students in public schools.** Likewise, schools in bigger cities performed better than schools in other areas. One worrisome result is the low performance of *Telesecundarias*. Even controlling for socioeconomic and demographic characteristics, these schools perform significantly worse than other types of schools.¹⁹⁰ While these schools have played a major role in meeting the demand for lower secondary school in many rural areas, the deficiency in quality negates some of their positive impact on enrollment.

70. **High teacher morale, good teacher behavior and attitude, and strong teacher qualifications are all positively associated with better teacher performance.** This impact is the strongest for low and especially middle achievers. On the other hand, evidence on the impact of infrastructure and computers is mixed. School laboratories and equipment do have a positive impact. The extensive use of computers is negatively associated with test scores and after controlling for socioeconomic background, there appears to be no measurable impact. This largely confirms the international evidence which shows little or no impact for computers. Without good teachers, investment in infrastructure and equipment is likely to have little measurable impact.

71. **One important factor that is associated with better outcome is increased school autonomy.** School based management (SBM) has been implemented in a variety of different countries through out the world, with the aim of given greater participation to parents in decisions affecting the school.¹⁹¹ Programs in Mexico such as Quality School Program (*Programa de Escuelas de Calidad* or PEC), offer the school money to be jointly administered by parents and the school administration to improve school quality. Not only does the additional money help the school address unmet needs, it serves as a strong incentive for parents to play a more active role in the school. The School Management Support Program (*Apoyo a la Gestión Escolar* or AGE), operated by CONAFE is another example of government support to help increase parent participation in school management. Research generally shows that both AGE and PEC have a positive impact on learning and enrollment. SEP will carry out rigorous impact evaluation of PEC in the near future, to help further understand the magnitude of the impact and how to mainstream in other government programs.

¹⁸⁹ Colima, which typically has the highest scores in education quality, historically has also had drop out rates than exceed the national average.

¹⁹⁰ Harry Patrinos 2005.

¹⁹¹ Harry Patrinos. 2006..

72. **Tertiary and Adult Education.** There are no international assessments of tertiary education and Mexico does not have a national evaluation system at the tertiary level.¹⁹² Anecdotal evidence suggests that the university system is relatively weak and does not educate students with sufficient rigor to compete on the global market. Mexico does have voluntary certification standards that cover many areas of tertiary education. The National Center for the Evaluation of Higher Education (*Centro Nacional de Evaluación para la Educación Superior, A.C.* or CENEVAL), a private organization, currently tests around 11 percent of graduates to provide them with certification. This program is voluntary.

73. **According to the OECD statistics, Mexican university students tend to concentrate more on “soft” subjects than is typical in OECD countries.** Engineering, the sciences, and mathematics account for 25.7 percent of tertiary enrollment in 2002.¹⁹³ This is one of the lowest among OECD countries. The OECD average is 32.9 percent, with both Sweden and Korea having proportions above 40 percent. Mexico also has a high proportion in social studies, business, and law (43.6 percent) and education (17.1 percent) compared to OECD averages of 32.9 percent and 12.6 percent. This is confirmed by the Labor Market Observatory, which shows strong demand for graduates in technical fields that is not met by the current supply of graduates.¹⁹⁴

74. **Traditionally, the private productive sector has not worked closely with public sector tertiary institutions and has had little impact in the design of programs and curriculum.** Public universities have generally used their autonomous status to “protect” them from market pressure. Although there is a growing trend for public universities to work with the private sector on a contract basis, the level of dialogue and interaction is far below what is seen in most other OECD countries. Private institutions often have a strong link with the private sector and can be quite responsive to the needs of the business community. Poorer students have limited access to the private sector.

75. Mexico is gradually introducing an accreditation system that will evaluate the quality of education offered by universities in addition to specific programs. Although accreditation is now required for all tertiary level programs, only a small percentage of programs have actually been certified. It is not clear that the accreditation authorities have the capacity to review all programs in a timely manner. **Accreditation is particularly important in systems where there is a significant presence of private universities and where public universities have broad autonomy.**

76. There is some evidence on the quality of adult education offered by INEA. Equivalency degrees have faced a certain stigma compared to traditional lower secondary degrees. Results from upper secondary entrance exams in the Federal District show that graduates from equivalency programs are similar in terms of knowledge from other types

¹⁹² Colombia is one of the few countries with a mandatory national assessment for university graduates. The results of the assessment are given to students and universities but are not used to determine graduation.

¹⁹³ OECD. 2004. *Education at a Glance 2004*. This refers to tertiary type A education, which generally corresponds to university education.

¹⁹⁴ www.observatoriolaboral.gob.mx

of lower secondary programs. While this is not a rigorous evaluation, it does confirm that the quality of adult education offered by INEA is fairly comparable to traditional lower secondary schools.¹⁹⁵

B. The Way Forward

77. **Mexico should improve its education quality to close the gap in its PISA results with other middle income OECD member countries by 2012.** Mexico is already a leader in Latin America in student assessment and collects a variety of data on both the state and national level. The next step is for education system to use this information to redesign curriculum and to respond to deficiency in quality. Mexico should continue to expand its assessment system, focusing on more grades and subject areas. One particular area of importance is reading for young children. Literacy is the basis of learning and many primary students are very late learners. Identifying these students early is essential to ensuring the effectiveness of the primary education system.

78. **Consistent with Mexico's goal to be internationally competitive, the country should also introduce specialized assessment focusing on subject matter of particular importance to the national economy,** in particular English and other foreign languages. This should focus on students at various ages to understand where the bottlenecks exist. In addition, foreign language teachers should also be regularly tested and additional training should be made to improve their language and teaching skills. A small investment in improving the capacity of foreign language teachers is likely to bring payoffs for the country.

79. **Mexico has a good assessment system, but it needs to use the results to push for changes and to improve teaching and learning.** Assessment results should be published by school and these results should widely be disseminated to serve as a “report card” of school performance. The goal is to provide support for poorly performing schools, not to punish them. Results from assessments should be used to revise school standards and the curriculum.

80. **Compensatory programs should continue and be intensified.** Evidence suggests that these programs have been successful in providing supply-side support to vulnerable areas. In a decentralized, federal system, compensatory programs play an important role in filling the gap that state and local financing cannot meet. Compensatory supply-side programs should continue and be integrated with demand-side programs.

81. **A strong focus is needed for indigenous students.** This should start early and emphasize reading and Spanish language competence. Helping indigenous students gain these abilities early will help close the gap that these students face later in school. Indigenous schools should continue focusing on bilingual education as Spanish is the national language of Mexico and essential for commerce.

¹⁹⁵ *Centro Nacional de Evaluacion de la Educacion Superior*. Administrative Data.

82. ***Telesecundaria* raises particular concerns.** Although this model has played an important role in increasing access for lower secondary school, the quality of learning of these schools is below what is expected controlling for associated factors. The *Telesecundaria* model is increasingly being used to cover any gaps in lower secondary coverage. This should stop. The government should introduce clear standards on when it is appropriate to use this model and when the traditional model should be used. *Telesecundaria* should be reserved for remote areas where traditional models are unlikely to reach. State governments should also begin to transition *Telesecundaria* schools to traditional schools in areas where this is appropriate.

83. **The *Telesecundaria* model also needs to be updated.** It is currently based on transmitting classes by satellite into distant classrooms. This is quite inflexible as it requires all students to take the same lesson at the same time. An alternative would be to rely more on DVD or similar technology, to provide schools with lessons in advance and allow students to proceed at their own pace. Satellite communication can still be used for conferences, live events, and two-way communication. It may be possible to install internet in remote areas using satellites as well.

84. **Mexico needs to increase the quality and relevance of tertiary education and other educational models aimed at adults.** Given the amount of resources dedicated to tertiary education and the growing demand for an educated workforce, quality should be priority. An important step is to strengthen the assessment system to monitor the knowledge and learning of tertiary graduates, both in universities and in other institutions. The purpose of this system should not be to develop a licensing system or accreditation system for professionals but to allow graduates to understand what they have learned and institutions to understand areas that need to be strengthened. Mexico is in the process of implementing of a certification process for tertiary institutions. This process should be intensified and should use national student assessments as part of the process. This should include development of national standards to reduce the transaction costs for transfers among universities from the technical schools into universities.

85. **Mexico needs to increase the accountability of public universities.** Autonomy for university should be seen as way to protect the institutions from political pressure but not to exempt universities for being accountable to the public for their educational impact. Currently, the government has been shielding the public sector too much from market pressures, leading to a strong bias in supply of non-technical specialties. Universities should make greater use of instruments such as the Labor Market Observatory and more effort should be made to disseminate market trends to future tertiary students. Public finance for universities can increasingly be allocated through results-based contracts that encourage expansion in critical areas for the economy while respecting traditional academic freedom.

86. **Given the low level of education of the adult population, it is important to have appropriate learning models designed for adults.** The government, led by INEA, should refine its pedagogical models to work with different populations, in both urban and rural areas. This should include the working and non-working populations of

different ages. Special attention should be paid to indigenous populations. INEA should also develop assessment systems to monitor the quality of its participants.

87. **To improve quality at all levels of education, stakeholders such as the government, teachers, parents, and the private sector should create a partnership for education quality.** Teachers play a central role in education and well-motivated and well-trained teachers contribute to student learning. The training system should reflect and should be adapted to take into account the results of assessments. Regular in-service training should concentrate on subject matters where students have performed poorly. In addition to focusing on improving teachers' knowledge of the material, they should also focus on teaching techniques.

88. **Teacher assessments should be used nationwide.** For teachers that are already incorporated into the system, these assessments should be used for the purpose of redesigning curriculum and teacher training programs. Initially, a survey-based assessment of teachers can be used. For new teachers, however, teacher assessment should be made part of the certification process as a signal for additional training. New teachers who are not able to achieve an acceptable score should not be certified.

89. **State governments should enhance their partnership with teachers focusing on improving the quality of teaching and learning.** Currently, states have little control on where teachers are assigned and often teachers are given inappropriate assignments. States should play a larger role in assigning and transferring teachers as required. Individual teachers should have the right to remain at the school of their choice but the assignment of new teacher positions should be fully flexible and be determined by the educational needs of the state.

90. **The government should continue to support school based management (SBM) models at all levels.** This should include transferring resources to parents associations to empower them to make meaningful investments in their schools and to enhance the authority of local school authorities to make decisions affecting the management of the school. Providing school based assessments is an important element of enhancing SBM. If parents and other stakeholders are aware of learning deficiencies within their school, they can take action to support efforts to improve school quality and make request to state-level education authorities for additional support.

IV. More Good Jobs for a Growing Labor Market

A. Policy Issues

91. **Mexico needs to be more productive to compete internationally.** Export manufacturing was built around cheap labor producing goods for the North American market. Many migrant workers leave the country to work seasonally or permanently in the United States and other countries. With the rise of globalization, Mexico faces intense competition from around the world and the economy will have to change how labor is used. Mexican firms will increasingly have to focus on increasing the value added of labor and focusing more on developing competitive advantages. However, this is complicated by

the low human capital level of the labor force and by the high transaction costs in the labor market that serve as a tax on labor and creates incentives for firms to operate illegally.

92. **Mexican labor law provides extensive rights to workers but is hard to enforce.** Effectively, employers face three different transaction costs when hiring workers. In addition to the salary, they have to pay non-salary labor costs (such as vacation pay and mandatory bonuses), the cost of firing workers (in terms of mandatory indemnifications), and tax and fiscal charges on their payroll (such as social security). High transaction costs, including high uncertainty related to the litigation process, deter the hiring of workers.

93. **By law, employers contribute a percentage of the payroll to help finance workers' health insurance, life insurance, housing programs, and old-age security.** The contribution for housing programs, at 5 percent of payroll, is particularly high.¹⁹⁶ In addition, there are strict rules on dismissing workers and the appropriate payments required. Employers also have to pay an annual bonus to all workers in addition to their standard salary. Workers who do not receive all of these benefits are considered outside of the formal sector. Including costs such as vacation time and bonuses, total non-wage costs in Mexico amount to 47.2 percent of payrolls.

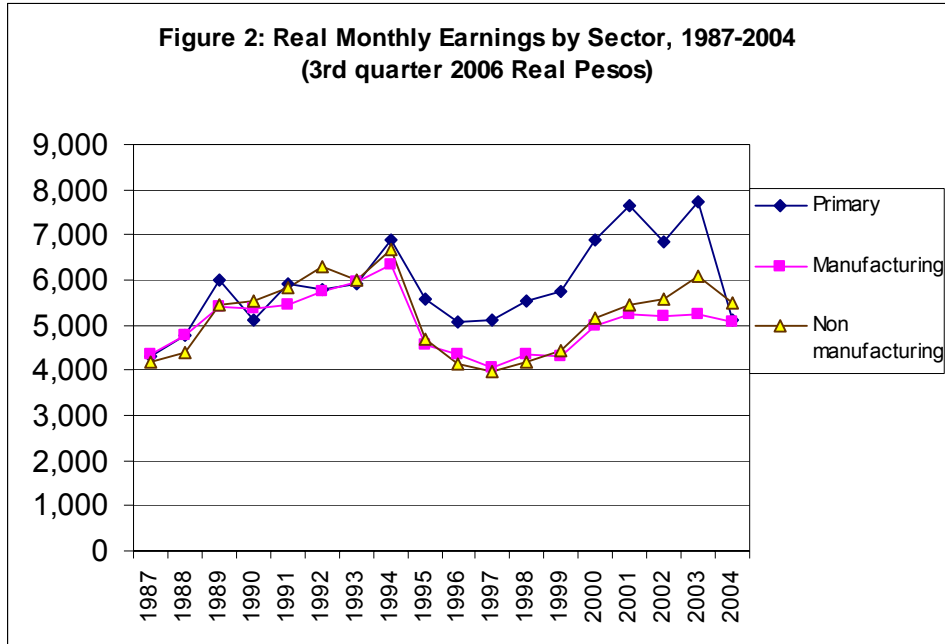
94. Uncertainty related to dismissals is huge. Around 30 percent of workers who consider themselves unjustly dismissed do not initiate legal suits. About two-thirds of the remaining 70 percent (about 50 percent of those who feel that they are unjustly fired) end in private settlements that compensate them well below the amount allowed in the law. The remaining 20 percent continue the legal process until the end, usually requiring a long time and substantial legal fees.

95. **The poor depend on labor as their primary source of income.** Many poor are self-employed, often with little or no capital. Other work for wage employment, often in the informal sector with little formal protection or the benefits mandated by law. Without better employment opportunities, they have little opportunity to rise out of poverty.

96. **In urban areas, real wages for the extreme poor have declined since 1991.** Pay levels have started to recover since 1996, but the improvement has not brought wages back to their 1991 level. However, real wages for the poor have recovered and are now above pre-crisis levels due to the positive growth of the economy in the last year in several sectors of the economy including maquila and services.

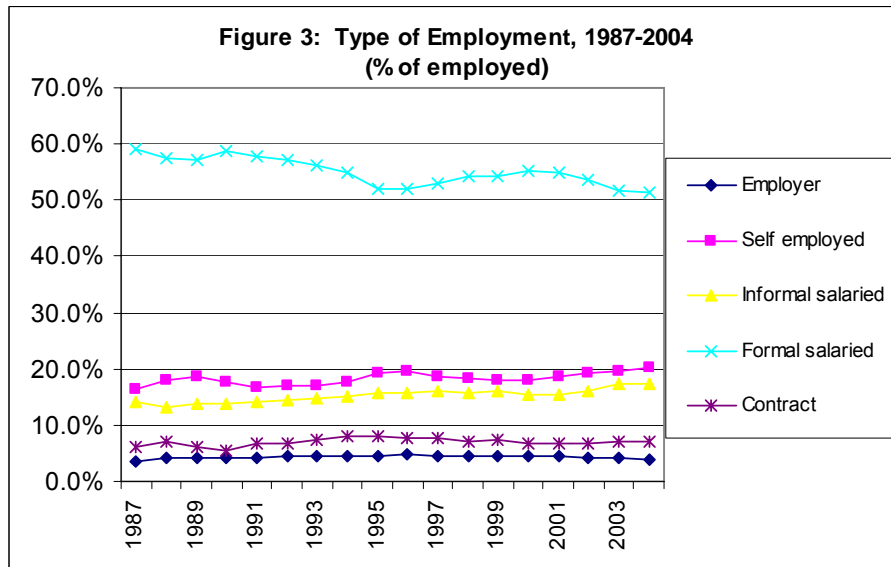
97. In rural areas, lack of sufficient dynamism in the small-scale farm sector, concentration of growth in the more commercial sector, and limited access to high-return jobs in the rural non farm sector are key factors in explaining stagnant income growth for the rural poor. **Slow productivity growth is a general problem for the Mexican economy and is the main factor behind the slow growth in earnings in urban and rural areas.** Figure 2 provides evidence of lagging real earnings.

¹⁹⁶ See chapter 4 on Social Protection for more details.



Source: INEGI, ENEU Survey

98. **Informal sector employment has expanded significantly from 1990, when it represented only 31 percent of total employment, to 37 percent of employment in 2004 (Figure 3).**¹⁹⁷ At the same time, average wages of the self-employed fell 27 percent between 1994 and 2004, implying that increased labor supply to the sector pushed down wages further.



Source: INEGI, ENEU Survey

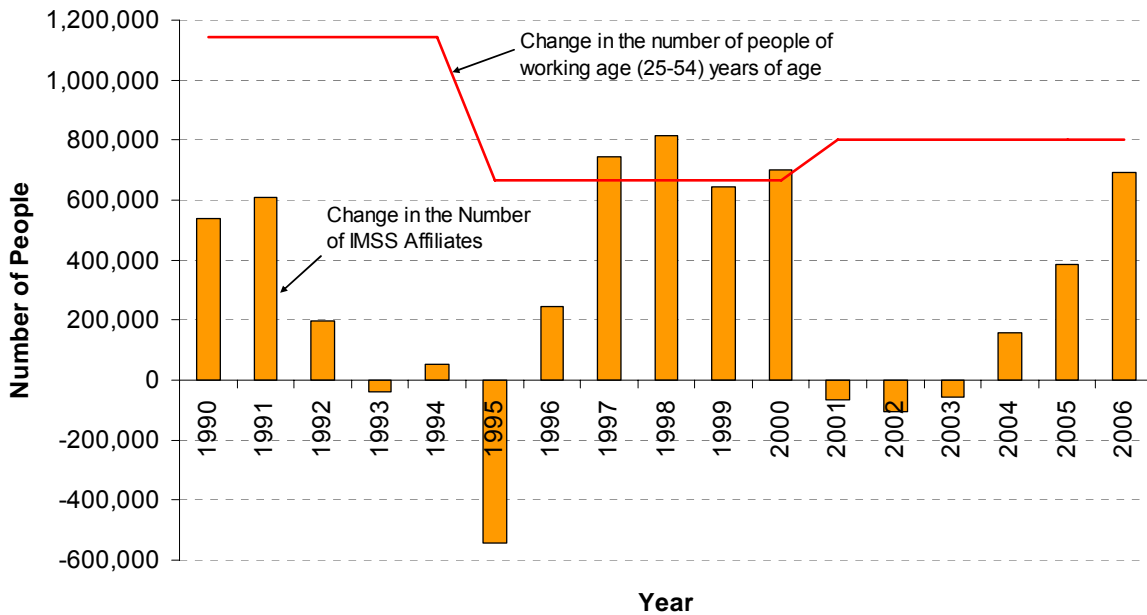
¹⁹⁷

Definition includes self-employed and salaried informal workers, and excludes employers.

99. **Whereas NAFTA appears to have spurred job creation**, the period since 2001 has been characterized by weaker economic performance in terms of slower GDP and employment growth, especially in the manufacturing sector. Figure 3 illustrates the problem. There have been few years since the early 1990s when formal sector job creation has kept pace with the growth of the working age population. Looking forward, stimulating economic growth and the expansion of higher productivity activities that require increased labor input at higher skill levels will be crucial for providing adequate jobs – both in number and quality.

Figure 4

Creation of formal sector jobs in México and new entrants into the labor force: 1990-2006



Source: IMSS

100. **Labor productivity growth has been low over the last 10 years in Mexico.** Table 4 shows labor productivity growth in other countries. Mexico displays the lowest growth in total productivity in both periods. Regarding industrial labor productivity, Mexico outperforms only Brazil and Colombia. Industrial labor productivity grew 2 percent per year in Mexico during the 1990s, while the average for the Latin American countries was 3.2 percent. In addition, the fact that industrial productivity grew at 2 percent while total productivity increased by only 0.4 percent indicates that productivity growth was sluggish in other sectors, notably agriculture and services.

101. **The Mexican labor market faces two main challenges that constrain productivity growth and a higher level of formality.** First, labor legislation introduces significant distortions into the labor market that make it expensive for firms to grow and to expand their workforce. Second, there is a lack of high skill in the labor force,

compared to what is demanded by the productive sector. These challenges affect productivity to the extent that they create barriers to adjustment that inhibit the adoption of new technologies and more efficient organization of production.

Table 4: Labor Productivity Growth during the 1990s

Country	Growth in Total Productivity		Growth in Labor Productivity	
	1990-1996	1990-1999	1990-1996	1990-1999
Singapore	5.6%	n.d.	8.6%	7.5%
Korea	5.0%	4.3%	7.1%	7.8%
Chile	4.6%	3.6%	4.0%	4.2%
Argentina	4.4%	3.2%	8.0%	5.4%
Uruguay	2.7%	2.4%	3.0%	3.1%
Colombia	0.7%	0.7%	0.4%	1.8%
Peru	0.6%	0.4%	4.5%	4.6%
Brazil	0.2%	0.3%	2.0%	1.5%

Source: World Bank. World Development Indicators.

102. **Two main messages constitute the basis for the need to improve the labor code:** (a) it should be a priority of reform to address the distortions and barriers to productivity growth and formal employment creation; and (b) a system that better protects Mexican workers and their families is urgently needed. That is, Mexican firms need labor regulations that allow them to take advantage of the new opportunities coming from their greater insertion into the global market, and Mexican workers need a system that moderates the shocks that arise from this greater insertion, and that effectively protects them when the shocks are realized.

103. **Mexico has a variety of active labor market policy interventions that aim to increase employment and improving productivity.** These include occupational training programs, labor intermediation services and direct and indirect job creation programs.

104. **Mexico has a number of programs that aim to improve the technical education to the workforce.** Occupational training programs are key for helping the labor supply keep up with the changing demand. Because firms' investment in training is generally insufficient, the role of the state is important in providing financing and a regulatory framework that provides workers, in particular the poorest, with tools to remain competitive in the labor force. The Program to Support Training (*Programa de Apoyo a la Capacitación* or PAC) subsidizes the hiring of independent instructors. Efforts are made to match firms with local training providers that correspond to their needs. Participant firms exhibit increased investment in training, improved labor productivity, higher capacity utilization rates, reduced personnel rotation, and improved production techniques, among others. The Work Training System (*Sistema de Capacitación para el Trabajo* or SICAT) supports firms meet their training needs. Where there is a large participation of private institutions in the provision of training courses, results have generally been positive. In medium and large enterprises, SICAT has had a positive impact on participants' income and employment and the implementation of training programs has helped these firms' courses' relevant. Results have not been so

positive in small and medium enterprises, which are precisely the firms that need the most assistance to innovate and promote workers' training.

105. **The distribution of occupational training services is very unequal.** From the poorest 10 percent of the population, only 1.5 percent attended some training program, whereas among the wealthiest 10 percent, the participation rate is 32 percent. This can be partly explained by the fact that the poor are mainly employed in informal firms, which rarely provide training. Evidence suggests that only 17 percent of the poorest workers who received training did so in the firm where they worked. Results also show that those programs with larger private sector participation (either privately offered training courses or courses offered in firms) obtain the most positive results.

106. **Efforts in education and training can be complemented by the strengthening of labor intermediation services** to increase the access of poor, low-skilled workers to labor market information and give them access to networks and connections that may boost their chances of finding good jobs. Labor intermediation services should be designed to facilitate the matching of candidates with vacancies and the referral of workers not only in the formal sector, but also more unregulated forms of employment, such as micro enterprises, self-employment, and small business development. Though the experience with current programs, such as CHAMBATEL or CHAMBANET, has been generally positive, evidence suggests that in practice, these programs are more accessible to skilled workers than non-skilled workers, or are designed to cover the unemployed who used to work in the formal sector. The utilization of public resources by people most likely to find jobs, even without these programs, undermines the effectiveness of labor intermediation services and reduces their social benefits.

107. **Worker placement in current programs is fairly high, but targeting could be improved.** Results indicate that the level of worker placement of current programs is 33 percent of the effective demand, a percentage that would be lower if the population that has no access to these services was taken into account. Compared with other countries' experiences (30 percent in Chile, 10 to 25 percent in Europe), this level of placements can be considered a success. An evaluation of the these programs in 2003 showed that workers with very low education levels, the youth, the elderly and those with the largest number of dependants (a possible proxy for the poor) were among those who benefited most from the program. These results suggest that a broader application of the benefits could increase the level of effectiveness and transparency in the use of resources. Such changes in the program will probably present operational challenges, however, that should be resolved in the framework of the *Servicios Estatales de Empleo* and access to an increased budget. More generally, a greater emphasis should be placed on targeting the neediest groups, such as the low skilled, the poorly educated, the poor or victims of discrimination, who typically face the highest barriers to job market entry, but seem to be receiving the least assistance.

B. *The Way Forward*

108. **The labor market is critical both to improving Mexico's international competitiveness and implementing the country's poverty reduction agenda.** Many of

the challenges that Mexico faces are institutional and require a review and modernization of existing labor laws. The system as it stands, offers little protection for workers and creates significant barriers for growth for many employers. However some workers do benefit from the system, and efforts are needed to protect and “grandfather” these workers into a new labor regime. In the area of active labor policies, the government should expand and better target existing programs, including job training and job search services.

109. Labor laws should be aligned to reflect changes in the global economy and Mexico’s social protection system. Current labor legislation is almost one hundred years old and intended to provide effective social protection to the workers.¹⁹⁸ Mexico’s can no longer compete with a low productivity labor force and an onerous labor legislation. Society should carefully examine each element of the social security system and identify which services are (i) expensive for employers and employees and (ii) of little real value to the employee. Reforms can remove the requirement and offer effective compensation for the affected workers. This will move the debate beyond one of conflict between employers and employees to one that focuses on improving competitiveness and worker welfare.

110. Likewise, many of the termination benefits are expensive for employers and have little benefit for employees. This is because many employers do not comply with the law, or because of the high uncertainties associated with the legal process, leading to costly legal action. Alternative arrangements, such as “no-fault” termination, with a defined annual contribution by the employer may help to lower the uncertainty and high cost associated with hiring and firing in Mexico.

111. The government should promote job training and help with job search. The evidence suggests that wage subsidies, on their own, are unlikely to have a long term impact on the employment or earnings of the poor and are probably not cost efficient. Given the large degree of “informality” in the labor market, it is difficult for firms to directly train many of their workers. Credit constraints may restrict the access of the poor to private sector training opportunities. Expanding programs like PAC and SICAT and improving their efforts to train workers from smaller firms should be considered. The current system largely benefits formal sector workers who work in well-established firms. Reforms should aim to make the benefits of training available to the whole working population.

112. Improving information for the workforce and for youth entering the workforce is important to ensure that the education system provides future workers with the right skill mix. Job search and job matching services can also help improve access to the formal sector for new job entrants. The education system should also work more closely with the private sector as a partner to ensure that that courses offered are

¹⁹⁸ The constitutional mandate to produce a national labor law was fulfilled in 1931 with the *Ley Federal del Trabajo* (National Labor Law, LFT), issued to “promote the betterment of the working conditions of the Mexican labor force.” This law was substantially reformed in 1970 and, with some minor changes after that, is the regulatory framework in force today, more than 30 years later.

relevant for firms. Existing programs have been successful but have mostly benefited formal sector workers or workers that have recently left the formal sector. More effort is needed to target the services to other workers and to the youth.

V. Looking Back and Looking Forward

A. Progress since Last Policy Note

113. **In 2000, the World Bank prepared a set of Policy Notes focusing on the challenges facing Mexico as it entered a new democratic era.** The policy notes covered a large number of sectors and challenges and proposed a series of reforms aimed at improving the efficiency and competitiveness of the Mexican economy and initiatives to improve the equitable distribution of those benefits.

114. **Mexico has made progress in reaching the education objectives proposed in the 2000.** Enrollment and retention have increased significantly at the basic education level, in part due to *Oportunidades* Quality has increased gradually. However, Mexico remains far behind other countries in tertiary education. There has been little progress in focusing on education needs of adults, which should be a major concern of the incoming administration. Likewise, while the government has made significant investment in IT, the impact is minimal and there has been little attempt to reform *Telesecundaria*.

Table 5: Specific Objectives of the 2000 Policy Notes in Education

Objective	Result
<ul style="list-style-type: none"> • Increase lower secondary enrollment to 75 percent 	Objective has been accomplished
<ul style="list-style-type: none"> • Encourage enrollment in cost-efficient, demand-designed technical education 	Little progress in developing new models of technical education.
<ul style="list-style-type: none"> • Increase participation in higher education to levels compatible to countries with a similar level of development 	Little progress in reaching tertiary enrollment rates seen in peer countries.
<ul style="list-style-type: none"> • Eradicate adult illiteracy 	Illiteracy has dropped from 9% to 8% but remains very high in some states
<ul style="list-style-type: none"> • Establish the foundation for a life long learning strategy 	Little progress has been made in establishing new life long learning strategies.
<ul style="list-style-type: none"> • Stimulate effective multicultural and bilingual policies 	General progress in increasing coverage bilingual education and general increase in quality for indigenous students.
<ul style="list-style-type: none"> • Disseminate IT-supported strategies in schools 	Government has invested in purchasing IT. No reform to <i>Telesecundaria</i> model or long-term training for teachers in IT.
<ul style="list-style-type: none"> • Reduce education inequality, focusing on poor and indigenous population 	Coverage has improved, especially for poor. Quality has also tended to increase more for vulnerable groups.

115. **Mexico has made less progress in improving access to the labor market.** Changing labor laws is always complicated there are often many who feel that their accumulated rights are in jeopardy. Reforms in the labor market must be built upon

strong political support. The advocates need to explain how changes will benefit the country, particularly competitiveness and effective protection to the workers. They also need to develop a strategy to protect existing rights, through payments and “grandfathering.”

Table 6: Recommendations made for labor reform in 2000 Policy Note

Recommendation	Result
<i>Modernize industrial relations and collective bargaining</i>	
• Introduce firm-level, decentralized bargaining and discard obsolete rules regarding collective bargaining	No progress
• Encourage more flexible job ladders	No progress
• Move towards more cooperative work relationship with unions	No progress
• Reform profit sharing	No progress
• Reform and consolidate minimum wages	No progress
• Eliminate restrictions on the use of flexible, temporary or fixed-term contracts	No progress
<i>Urban informal market needs policies to stimulate growth and formal market participation</i>	
• Reduce cost of registration and the high cost of being formal	Some progress in reducing registration costs
• Reduce high cost of formal sector wages	Reform of the social security health insurance
• Raise the productivity of the formal sector	Little progress

B. Conclusions

116. Mexico faces many challenges in the upcoming six years. **Without changes in its education system and in the way that its labor markets work, Mexico will continue to lose its international competitiveness and its rate of growth will continue to stagnate.** Without faster growth, the high levels of inequality and poverty will continue.

117. **Improving education is important both in its own right and to increase Mexico’s competitiveness and future potential growth.** The Mexican education system faces challenges at all levels, including incomplete coverage of basic education and low quality of learning. The education system is complicated with both federal and state governments involved. This relationship should be addressed and updated as the government attempts to update the entire education system. Low levels of enrollment at the upper secondary and tertiary levels directly impact on the quality of the Mexican workforce. Likewise, the lower average level of education of workers has a similar impact. Going forward, Mexico should work to keep more students in school and improve the education and skill levels of adults already out of school.

118. **The economy is burdened by a labor system that offers limited protection to the worker while generating significant distortions and transaction costs.** Mexican workers are already at a disadvantage due to their education level. Current labor laws do not help. They raise the cost of employment and doing business in Mexico while

providing limited tangible benefits to workers. Reforms should be centered around useful protections for workers that complement and not duplicate the social protection system.

119. **Mexico's reform agenda should be seen as a long term project.** It is neither possible nor desirable to introduce a radical reform in the short term. Rather the government should work with different elements of society to bring about change in a gradual fashion, fully protecting existing rights under current rules while introducing new systems. In the long term, Mexico will need to reform and it should be prepared to pay the long-term costs to increase its competitiveness. This note has proposed a number of reforms that are summarized in the table in Annex 1.

Annex 1: Summary of Recommendation

Objectives	Actions
Goal 1: Increased Education Coverage	
Deepen decentralization and administrative reform	<ul style="list-style-type: none"> • Merge the state and federal systems • Transfer upper secondary schools to states • Transparent budgeting • Move towards transfer by capitation
Increase access to early childhood development services	<ul style="list-style-type: none"> • Weigh priorities in expanding coverage • Explore alternative delivery models
Universal coverage of primary education and lower secondary education	<ul style="list-style-type: none"> • Implement flexible models • Improve coverage of bilingual schools • Develop strategies to “graduate” <i>Telesecundarias</i>
Upper secondary enrollment increases from 54% to 75%	<ul style="list-style-type: none"> • Expand CCT programs to upper secondary schools in low coverage areas
Increase enrollment in tertiary education from 29% to 36%.	<ul style="list-style-type: none"> • Use student-centered finance for the poor • Loan programs for all tertiary students
Decrease the education gap in adults	<ul style="list-style-type: none"> • Expand use of subsidies and CCTs to encourage participation in basic education • Increase INEA coverage by 750,000 to 1,000,000, focusing on youth
Goal 2: Improved Education Quality	
Increase performance on international PISA assessment to meet middle income average by 2012	<ul style="list-style-type: none"> • Expand assessment system to preschool and early grades, focusing early learning • Expand assessment system to other subjects, such as foreign languages • Improve bilingual education • Review bilingual education program and increase training for bilingual teachers • Modernize delivery of <i>Telesecundaria</i>
Improve the quality and relevance of tertiary education and life long learning	<ul style="list-style-type: none"> • Accelerate the accreditation system for public and private tertiary institutions • Greater coherence of lifelong learning and tertiary education • Use results based budgeting in universities
Create a Partnership for Education Quality	<ul style="list-style-type: none"> • Increase flexibility to transfer teacher positions • Create legal mechanisms to mainstream greater school autonomy • Increase use of teacher assessment to identify areas for teacher training
Goal 3: Enhance Opportunities in the Labor Market	
Promote job training and job search programs	<ul style="list-style-type: none"> • Improve job search programs • Increase efforts to expand formal training for employees • Improve information about market conditions in critical areas

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Chapter 8: AGRICULTURE, RURAL DEVELOPMENT AND LAND POLICIES

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Poverty rates in rural areas in Mexico are substantially higher than in urban areas. Programs to assist the poor in improving their income potential in both agricultural and non-agricultural activities should be high on the agenda for improving equity. Agricultural development would be an important way to increase incomes and reduce poverty in rural areas, but agriculture performance has been sluggish over the last 20 years, lagging behind other sectors. Competitive challenges in agriculture are large and will increase for some sensitive sectors with the end of the NAFTA transition period. The reform of land policies in the 1990s has not resulted in substantial changes in land use and productivity. Currently, government expenditures towards agriculture and rural development are high by international standards, however, results have been limited in terms of improving agricultural productivity and reducing rural poverty. This chapter examines the performance of agriculture and of agriculture and rural development institutions and programs. It suggests that there is a need to strengthen the agriculture innovation and rural finance systems and to reassess the system of agriculture subsidies, and it proposes that greater decentralization of production-oriented rural development programs accompanied by more careful rural development planning at the state level could improve rural development outcomes.

Introduction

1. We discuss in this chapter issues related to the economic development of the rural areas of the country. **The chapter follows on a previous set of policy notes prepared by the World Bank in 2000 (World Bank, 2001), and especially on their Chapter 15 where agriculture and rural development (ARD) were discussed.** The 2002 notes highlighted positive changes that had been taking place in ARD. Major among these were the policy reform of agricultural markets in the 90s, advances in decentralization and the mainstreaming of social and poverty programs through *Alianza para el Campo*, advances in the transfer of irrigation systems to water users associations, advances in the clarification of tenure rights through *Procede*,¹⁹⁹ and the “institutionalization” of RD. At the same time, the notes pointed out important shortcomings in ARD in Mexico, the main ones being the sluggish growth performance of agriculture, and the deep inequalities among agricultural regions and farm types, with a strong contrast between an advanced commercial agriculture in the North and Center-north and a dominantly peasant agriculture in the South and the Pacific. The persistence and high incidence of rural poverty, the weakness of the financial and innovation systems, and a number of issues in the incentive system and subsidy programs were also highlighted.

* In addition, Anna Corsi, Takako Mochizuki, and Fernando Galeana contributed to this chapter.

¹⁹⁹ Procede is the acronym for the *Programa de Certificación de Derechos Ejidales y Titulación de Solares Urbanos* (Program for the Certification of “Ejidal”-Comunal Rights and Titling of Urban Plots).

2. Six years later, some of the advances previously identified continue to progress. Thus, there has been some further decentralization of RD programs; *Procede* is now almost finished, there was some mainstreaming of *Alianza* programs, and the “institutionalization” of RD experienced a leap forward with the December 2001 *Ley de Desarrollo Rural Sustentable*. There was also recovery in agricultural growth in 2001, 2003 and 2004 but with downturns in 2002 and 2005, and significant improvements in rural poverty until 2004, not sustained in 2005. The dualistic characteristic of Mexican agriculture and the weaknesses of the financial and innovation systems continue without much change. **The overlapping of ARD programs from different secretarias, the large number and lack of coordination of these programs, and their variety of objectives, eligibility criteria, and operation rules continue to form an intricate web of ARD subsidies and production incentives with dubious overall rationality and effectiveness.**

3. In this chapter we survey the above issues and make some policy recommendations. In particular, **we examine the performance of the agricultural sector, briefly reviewing rural public expenditure and the main agriculture support programs, review the advances made in the decentralization of rural development (RD) programs, outline a proposal for a fuller decentralization of production-oriented RD programs, and highlight some issues related to land and land policies.**

Agriculture Performance and Competitiveness Issues

Trends in Agricultural Growth and Productivity

4. **Mexico has experienced declining long-term agricultural growth.** Mexican agriculture grew at a fast pace of around 7 percent annually until the end of the 1960s, fueled by the incorporation of new land, irrigation investments, agricultural protection, and favorable commodity prices. By the 1970s, however, growth slowed down to about 2 percent despite a wide array of government interventions. Growth continued to be weak since 1984 (1.3 percent in 1984-04), compared to the rest of the economy (3.0 percent), with a somewhat better, but still poor performance after 1994, i.e., upon the signing of NAFTA (Table 1).

Table 1: Average Annual Growth Rates of Total and Agricultural GDP

Years	National GDP		Agriculture GDP	
	Total	Per Capita	Total	Per Capita
1984 - 1994	2.7	0.8	0.8	-1.1
1994 - 2004	3.3	1.8	1.9	0.4
1984 - 2004	3.0	1.3	1.3	-0.4

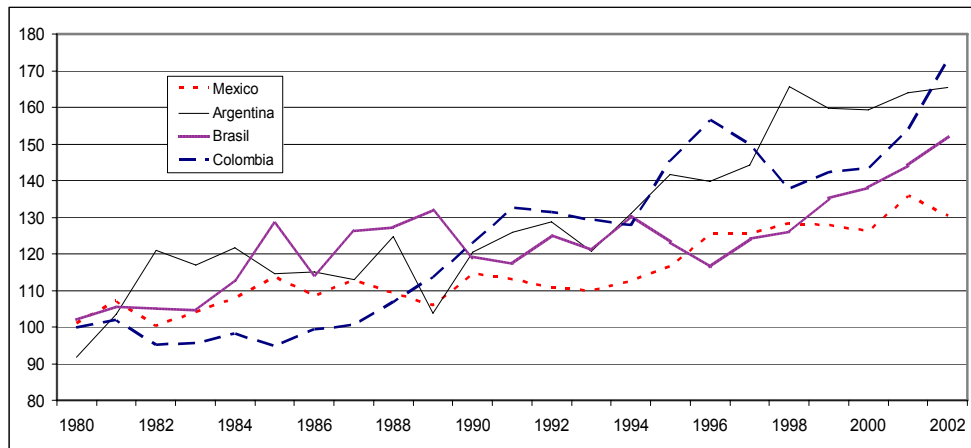
Source: World Bank database

5. **Weak long-term performance can also be gauged from other indicators** such as the share in GDP, employment and exports, all of which point to a diminishing industry. The share of agriculture (including fisheries and forestry) in GDP fell from 16 percent in 1960 to 8 percent in 1980, and less than 5 percent today. If the entire agro-food economy is considered, however, the share is 11 percent. The share of agriculture in the labor force fell from 50 percent in 1960 to 36 percent in 1980 and some 20 percent in 2004, while the contribution to exports fell from 13 percent in 1980 to around 4 percent today.

6. **Land productivity, i.e., average yield per hectare, grew some 30 percent in 1980-02 (i.e., 1.2 percent annually), with growth being more significant since 1994.** This is the result of yield increases in individual crops plus improved cropping intensity and crop mix. The former factor was more important in the pre-NAFTA years and the latter factors in the years after NAFTA (see FAO, 2004).

7. **Other major LAC competitors have gained in land productivity more than Mexico.** Thus, while Mexico's land productivity index grew only 30 percent in 1980-02, those of Argentina, Brazil and Colombia show increases of 50 to 70 percent (Figure 1).

Figure 1: Evolution of Productivity Index in Croplands (1979-81 = 100)



Source: FAOSTAT

8. **Labor productivity in Mexican agriculture almost doubled between 1980 and 2002 (Figure 2).** Performance lagged with respect to Colombia and especially Brazil, where labor productivity more than quadrupled, but productivity growth was above Argentina. In absolute terms, agricultural output per worker is US\$ 2,533 (1995 prices) in Mexico, US\$ 9,988 in Argentina, US\$ 5,737 in Brazil, US\$ 3,769 in Colombia, and US\$ 3,766 in all Latin America and the Caribbean (LAC). Mexico, thus, is below major competitors and the LAC average. The distance between labor productivity in agriculture and other sectors in Mexico is extremely large. Labor productivity is comparable to that of Argentina, Uruguay and Chile in non-agricultural sectors, and to that of Guatemala, Nicaragua and Peru in agriculture (Figure 3).

Figure 2: Agriculture Labor Productivity Index, 1979/81 = 100

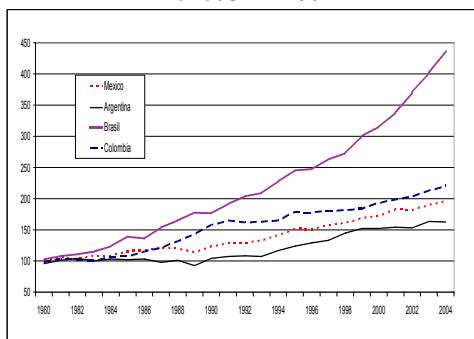
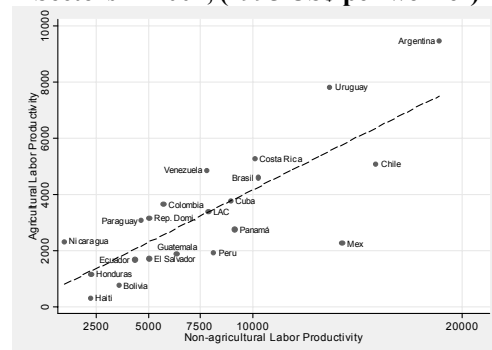


Figure 3: Labor Productivity in Agriculture and other Sectors in 2002, (1995 US\$ per worker)



Source: FAOSTAT

Source: World Bank (2005)

9. **Yield growth has been slow for most crops in Mexico (Figures 5 and 7), which has yields below other major LAC countries for almost all crops (Figures 4 and 6).** The main exception is wheat, which Mexico produces almost entirely on irrigated lands with higher yields than those of Chile and the US (Figure 4). In general, most yield increases have occurred in irrigated areas.

Figure 4: Yields for Major Basic Grains (2001-2004, ton/ha)

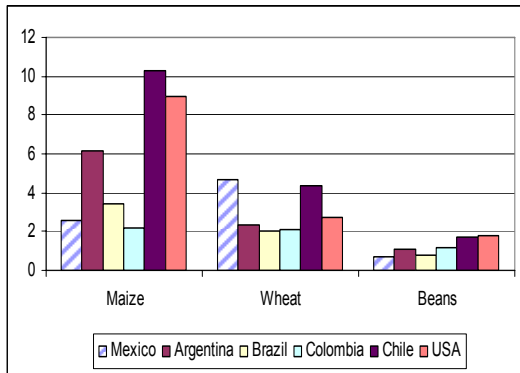


Figure 5: Trend in Yield for Mexico for Major Basic Grains (1983-2004, ton/ha)

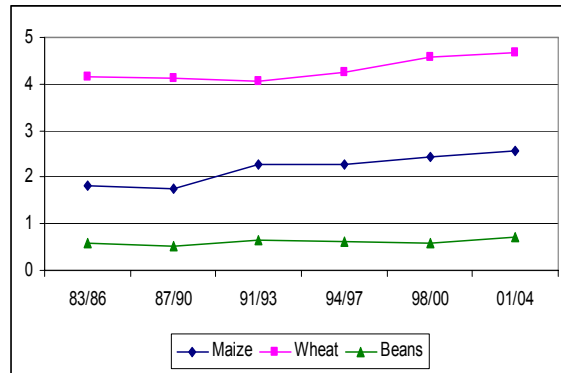


Figure 6: Yields for Major Export Crops (2001-2004, ton/ha)

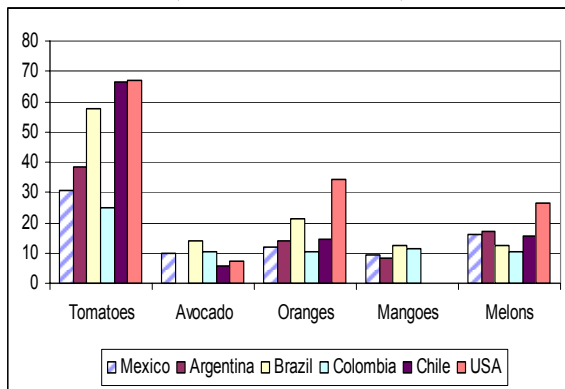
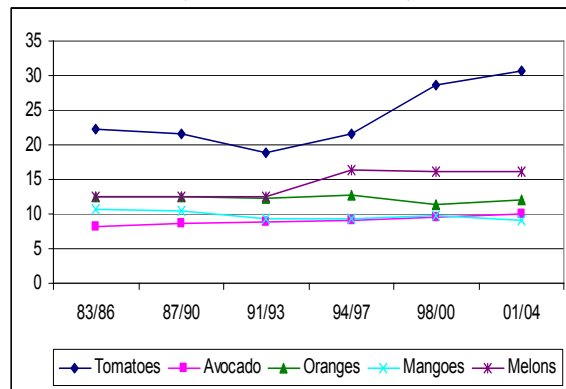


Figure 7: Trend in Yield for Mexico (1983-2004, ton/ha)



Source: FAOSTAT

10. **Total Factor Productivity (TFP) measures productivity growth not captured by the contributions of individual production factors.** It explains the impact of technology improvements, measured as the residual output growth after the effect of growth in all factors has been considered. Annual TFP growth in Mexican agriculture sector in 1980-2001 was 1.5 percent, smaller than the 2.3 percent of the period 1961-1980, and smaller than that of other major LAC competitors and the LAC average (Table 2).

Table 2: Annual Growth Rates of TFP in Mexico and Other Countries

Countries	Crops		Livestock		Agriculture		
	1961/80	1980/01	1961/80	1980/01	1961/80	1980/01	Average
Argentina	3.08	3.93	0.90	0.43	1.83	2.35	2.09
Brazil	0.38	3.00	0.71	3.61	0.49	3.22	1.86
Chile	1.08	2.22	0.24	1.87	0.69	2.05	1.37
Colombia	2.01	1.27	0.49	2.24	1.37	1.73	1.55
México	1.53	1.43	3.02	1.63	2.26	1.51	1.89
LAC average	1.46	2.40	1.42	2.21	1.39	2.31	1.85

Source: Ávila and Evenson (2004)²⁰⁰

11. **Mexican agriculture has lost its long term dynamism.** The above figures indicate that during the last thirty years sectoral growth was sluggish, with agriculture falling behind the rest of the economy as well as the agricultural sectors of major regional competitors. Growth in value added, land productivity and TFP was smaller than in comparator countries, and with few exceptions yields and labor productivity are low compared to those countries.

Rural Incomes and Poverty

12. **Another long-term trends is the slow increase of rural incomes.** Lack of agricultural dynamism is partly responsible for the low increase of family incomes in rural areas of around 9 percent in 1992-04. Income derived from productive activities increased only 4 percent in the entire period, compared to an increase of 31 percent in income from transfers (Table 3).

Table 3: Growth Decomposition of Per Capita Average Rural Income in 1992-2004, by Income Origin

Income Origin	Income (MxP)		Increase in Income		Source of Growth (%)
	1992	2004	Total	%	
Production	2565.0	2665.6	100.6	3.9	35.7
Ownership	307.5	366.2	58.7	19.1	20.9
Transfers	388.6	510.8	122.2	31.4	43.4
<i>Total Income</i>	<i>3261.1</i>	<i>3542.6</i>	<i>281.5</i>	<i>8.6</i>	<i>100.0</i>

Source: Caballero (2006)

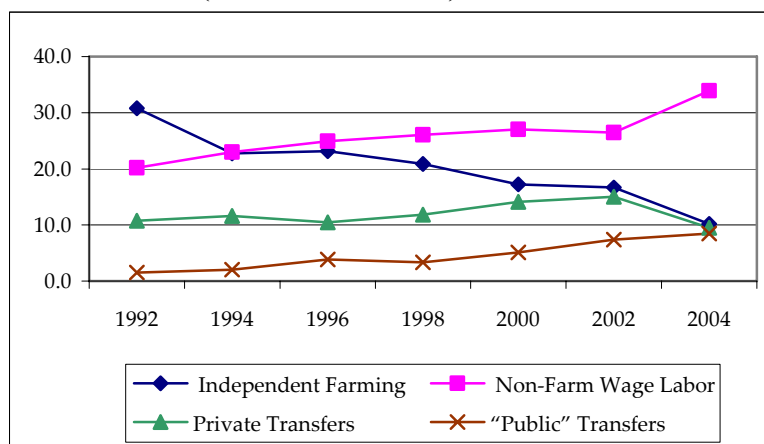
13. **In addition, there has been a change in the composition of rural incomes away from agricultural activities.** This trend is not surprising given the sluggish performance of agricultural productivity described above. Thus, the share of income derived from independent farming fell from 31 percent in 1992 to 10 percent in 2004 (Figure 8).

14. **There has been a decline in rural poverty but the incidence is still high.** There is strong evidence that agricultural growth is a source of poverty reduction. In the case of Mexico the elasticity of extreme rural poverty to agricultural growth has been estimated at -1.5 (World Bank, 2005). Lack of agricultural dynamism is hence partially responsible for the continuing high incidence of rural poverty in Mexico. In 2005 extreme poverty in rural areas encompassed

²⁰⁰ The factors considered were land, labor, fertilizer, animal traction, machinery (tractors and harvesters) for crops and land, labor, animal capital cost, and feed for livestock.

32.3 percent and moderate poverty 61.8 percent of the population (CONEVAL, 2006). This is an improvement over the 42.4 and 69.2 percent incidence of 2000, but it remains unacceptably high.

Figure 8: Change in the Composition of Income in Rural Areas (< 2,500 inhabitants) in 1992-04



Source: SAGARPA (2005)

The Impact of NAFTA

15. **Agricultural policy has evolved from an inward looking economy to NAFTA.** Before the mid-1980s, Mexico had highly protectionist and interventionist agricultural policies. Mounting external debt, a sharp devaluation of the Mexican Peso, the economic crisis of the early 1980s, and international pressure, forced Mexico to abandon the import-substitution model and institute an historic process of sweeping economic reforms. As part of the adjustment, Mexico entered GATT in 1986, reducing its average tariff level from around 80 to 50 percent. In the agricultural sector, Mexico went further, unilaterally reducing average tariff levels to between 10 and 20 percent well before signing NAFTA in 1994.

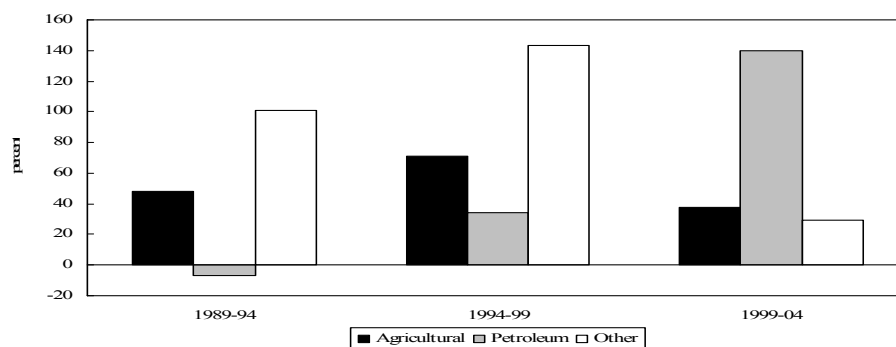
16. **There was rapid export growth upon liberalization even before NAFTA.** In the five years prior to NAFTA, Mexican exports increased 72 percent--from US\$ 35.2 billion in 1989 to US\$ 60.6 billion in 1994. Agricultural exports increased 50 percent in the same period--from US\$ 3.0 billion to US\$ 4.5 billion (Figure 9).

17. **NAFTA was important but its impact is difficult to assess.** NAFTA provided a sliding system for the elimination of tariffs and non tariff barriers²⁰¹. It also established norms for the application of measures to counter threats to domestic producers and customers such as sanitary and phytosanitary requirements, anti-dumping and countervailing duties, and safeguards. A formal mechanism for resolving disputes was also introduced. Tariffs of many agricultural products were rapidly cut to zero. Only a few "sensitive products" were allowed tariff rate quotas (TRQs). Mexico currently has TRQ rights for the importation of dry beans, maize, and powder milk, while the US established seasonal tariffs and TRQs for certain fresh fruits and vegetables.

²⁰¹ One major non-trade barrier which NAFTA eliminated was Mexico's import licensing requirements. Before NAFTA about 25 % of the value of US agricultural exports to Mexico (e.g. poultry, wheat, maize, dry beans) was subject to licensing or prior import permit requirements. Under NAFTA, licenses were converted to TRQs.

TRQs on these commodities are scheduled for elimination by 2008. Mexico has not needed to resort to over-quota tariffs since import demand for TRQ products has not exceeded the quota (or the quota was unilaterally increased, as in the case of maize). NAFTA has been an important milestone but its impact is difficult to isolate from the effects of other major events such as the Peso devaluation of 1994-5. Also, NAFTA follows over a decade of drastic agricultural reform policies. The impact of NAFTA on specific exports will be discussed further in the next section.

Figure 9: Percent Change in Agricultural and Non-Agricultural Export Value (1989-2004)



Source: COMTRADE

18. **Following the signing of NAFTA, Mexico embarked on a global strategy of diversification of export customers through aggressive negotiation of FTAs.** Since 1994, Mexico has signed 12 FTAs: with Bolivia (1995), Costa Rica (1995), Colombia and Venezuela (G-3, 1995), Nicaragua (1998), Chile (1999), Israel (2000), the EU (2000), Iceland, Norway, Liechtenstein, and Switzerland (EFTA, 2001), Guatemala, Honduras, and El Salvador (North Triangle, 2001), Uruguay (2003), and Japan (2005). Little research has been done on the effects of these FTAs on Mexican agricultural trade, but there is little evidence that headway was made in developing new agricultural export markets. The potential remains, nevertheless, for these agreements to eventually provide some cushion against declining shares for many of Mexico's agricultural exports to the US market.

19. **Exports surged after NAFTA but the agricultural trade balance with the US deteriorated.** Following NAFTA, agricultural growth was fragmented, with the growth favoring mostly irrigated and commercial farms growing fruit and horticulture crops mainly for exports, and also in the export of processed foods and beverages. Overall, sectoral performance after NAFTA has been moderate only, below the levels of regional competitors such as Chile, Brazil and Argentina. Agricultural imports increased substantially, more than exports, resulting in a deterioration of the agricultural trade balance with the US, which passed from US\$ -211 million in 1991/93 to US\$ -1.3 billion in 2001/03.

20. **Surprisingly, the production of basic grains did not fall but increased slightly after NAFTA.** This may be due to several factors: (1) indirect price protection through ASERCA's marketing subsidies, (2) the need for farmers to continue cultivating the land in order to receive the *Procampo* subsidy, (3) an increase in cereal yields in irrigated areas, (4) the resilience of maize production in rain-fed areas due to tradition, risk factors, shortage of alternatives, and

subsistence consumption, and (5) the segmentation of Mexican cereal markets due to differences in varieties associated with tastes, location and marketing channels, with local food grains having an advantage not enjoyed by feed grains where imports increased most.

21. **Market share is being lost in the US.** Despite strong export growth, there are worrisome trends in the dominant export market, the US, which absorbs some US\$ 9 billion or 85 percent of Mexican food and agricultural exports. Mexico is still the largest provider of fresh fruits and vegetables to the US, with 56 percent market share, but is facing share erosion in most of its 24 top export crops, losing market share to South and Central American competitors. Diversification to non-US markets is minimal despite the signing by Mexico of FTAs with various countries and trade areas mentioned above. With 4 percent of Mexican agricultural exports, the EU is the second largest market, but market share is also being lost there.

22. **Mexican agriculture faces great competitive challenges.** As NAFTA tariff exemptions expire in 2008, Mexican producers will face renewed competition in products like maize, sugar, powder milk and beans, while transitory support programs, like *Procampo*, will be discontinued or reformed, at least in principle. Also, as the US signs FTAs with other regions and countries giving them preferential treatment, Mexico will face increasingly tougher competition in its most important export market.

Public Expenditure in Rural Areas

23. **The total amount spent by the federal government in rural areas is large.** In 2005, the total federal rural budget was close to US\$ 14 billion or some US\$ 560 per head of rural population. It amounted to 43 percent of the sum of the administrative budgets of the *secretarías* active in rural areas, one half of agricultural GDP, and close to 2 percent of national GDP²⁰². The amount going to production support programs, which are the ones that concern us most here, oscillated between MxP 46 to 51 billion, according to an estimate of the Secretariat of Finance and Public Credit (SHCP).

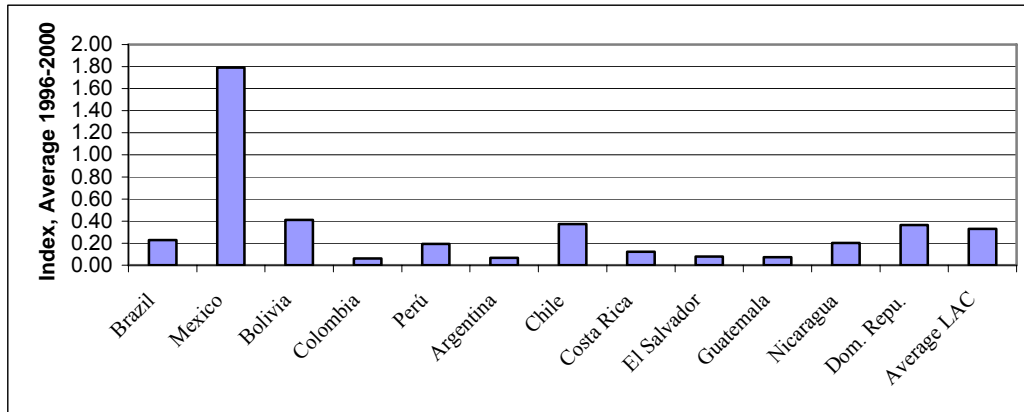
24. **Cross country comparisons of agricultural expending reveal that Mexico spends comparatively more than other countries in the region.** Considering exclusively the expenditure going to the agricultural sector and taking the average of 1996-2000, whichever way this expenditure is measured, per hectare, per agricultural worker or per unit of national GDP, it is bigger in Mexico than in other countries of Latin America. Figure 10 compares LAC countries according to an “agricultural orientation index”²⁰³, which indicates the intensity of the fiscal effort in agriculture relative to the economic importance of the sector. Mexico is the only country included in the study with an index > 1, which is in fact more than four times larger than those of the next countries, Bolivia, Chile and Dominican Republic. Mexico, hence, practices public expenditure discrimination in favor of its agriculture²⁰⁴.

²⁰² According to GDP estimates available on-line from INEGI, 2005 GDP was MxP 288,513 million for agriculture and MxP 8,374,349 million for the entire economy.

²⁰³ This index is built by dividing the share of agricultural public spending in total public spending by the share of agriculture in GDP.

²⁰⁴ See World Bank, 2005, Chapter 4. The index refers to agriculture, not to all rural expenditure.

Figure 10. Agriculture Orientation Index in LAC Countries, Average 1996-2000



Source: World Bank (2005e), on the basis of FAO data

25. **High levels of rural public expending have been maintained for many years.** The impact, however, on the rural economy of this massive expenditure effort is not evident. In Mexico, the main problem is not the shortage of fiscal resources devoted to rural areas, as is the case in other Latin American countries, but the efficiency in the use of the resources.

26. **In recent years, there have been efforts to coordinate ARD spending in an attempt to improve its impact: the *Programa Especial Concurrente*.** In June 2002, as a corollary of the *Ley de Desarrollo Rural Sustentable* (LDRS), legislation was issued mandating the preparation of a *Programa Especial Concurrente* (PEC) under the responsibility of the *Comisión Intersecretarial para el Desarrollo Rural Sustentable*²⁰⁵ (CIDRS). The aim of PEC is to coordinate the RD actions of the relevant *secretarías*. As a result, a document has been published with the objectives and goals of all main federal RD programs²⁰⁶, and the amounts of federal budgetary resources going to rural areas of the various *secretarías* have been estimated and added up for years 2003, 2004 and 2005. Table 4 shows these amounts broken down by the categories in which public expenditure in rural areas is organized in PEC. Some considerations are in order to interpret Table 4 figures. First, all kind of programs are included, ranging from infrastructure and direct cash transfers to farm subsidies and official credit programs. Municipal infrastructure under Ramo 33 is included, and so are the relevant operating expenditures of *secretarías* and programs. Second, the categories in which figures are broken down in Table 4 are rather hazy and must be taken as an approximation only. Most programs do not fall comfortably into one single category, either because activities may fit into more than one category or because programs may have different activities belonging to separate categories.

²⁰⁵ This committee is formed by the secretaries of all federal *secretarías* directly involved in the development of rural areas. Included are SAGARPA, SECON, SEMARNAT, SHCP, SCT, *Salud*, SEDESOL, SRA, and SEP. It is chaired by the Secretary of SAGARPA (art. 21 of the LDRS).

²⁰⁶ SAGARPA: *Programa Especial Concurrente para el Desarrollo Rural Sustentable, 2002-2006*. México DF, 2002.

Table 4: Programa Especial Concurrente by Expenditure Categories

Expenditure Category	Programa Especial Concurrente, million MxP					
	2003		2004		2005	
	Total	%	Total	%	Total	%
Social Conditions	45,343	38.7	61,704	51.9	75,301	51.3
Labor Conditions	2,874	2.5	976	0.8	485	0.3
Land Policies	3,257	2.8	3,071	2.6	4,191	2.9
Production Support	50,687	43.3	45,705	38.4	47,715	32.5
Basic & Productive Infrastructure	10,032	8.6	5,978	5.0	13,145	9.0
Environment	4,905	4.2	1,457	1.2	5,928	4.0
Total	117,097	100.0	118,892	100.0	146,765	100.0

Source: SAGARPA for 2003 and Federal Budget for 2004 and 2005

Rural Subsidies and Agriculture Incentives

27. **An outstanding feature of PEC is the large number of programs encompassed.** There are some 267 RD programs in the 2005 PEC, of which 111 from SAGARPA and 156 from other federal government entities. Many of these programs have their own subprograms. If subprograms are considered and the states' own programs are added, a guess of the order of magnitude of the current number of rural programs in Mexico can be of the order of five hundred. Many of these programs are duplicative. Credit programs, programs to support women groups, and programs to support group processing enterprises are typical examples of this.

28. **PEC is meant to be a coordination tool for this collection of ARD programs but in practice it is not.** Ideally, RD programs should be jointly planned and budgeted and their implementation tightly coordinated. In practice, however, PEC has not managed to become a RD strategy or plan or joint budgeting mechanism; it has not its own objectives, and simply collects the objectives, policies, strategies and lines of action of the relevant federal *secretarías*. Although a joint budget for PEC is presented to Congress by the *Comisión Intersecretarial*, no joint programming or budgeting takes place. SHCP prepares sectoral budgets in discussion with federal *secretarías*, and these budgets (or the parts relevant to rural areas) are then added in the overall PEC budget²⁰⁷.

29. **The proliferation and lack of coordination of RD programs is a critical problem standing in the way of effective public spending in rural areas.** Each federal program has its own regulations, timing, implementation units and, often, *ad hoc* participation committees. Furthermore, there is no national ARD strategy that would facilitate convergence. Lack of horizontal coordination at the federal level complicates vertical coordination between federal and state governments, because the latter must deal separately with each federal program authority. It is very difficult for state governments to design coherent ARD strategies under these circumstances.

30. **Main farmers' support programs.** Mexico's producer support programs fall into five major categories: (i) market price supports (mainly ASERCA's *Ingreso Objetivo* and *Cobertura*

²⁰⁷ PEC figures appear as Annex 17 of the federal expenditures budget.

de Precios programs), (ii) de-linked programs based on historical entitlement (*Procampo*), (iii) general on-farm investment subsidy programs (mainly the Agriculture, Livestock and RD programs of *Alianza para el Campo*), (iv) input support programs (mainly the *Tarifa 9* electricity subsidy and the *Diesel Agropecuario* programs), and (v) *ad hoc* subsector-based subsidy programs (mainly the *Apoyos a la Competitividad*, *Integración de Cadenas*, and *Programa Ganadero* programs). The amounts involved in some of these programs are shown in Table 5, while their main features are summarized in Table 6.

Table 5: Budgetary Expenditure of Selected ARD Federal Programs in 2005 (million MxP)

Program	Amount	%
Procampo	14,167	30.6
Alianza para el Campo	7,465	16.1
Apoyos a la Competitividad	4,494	9.7
Ingreso Objetivo	4,260	9.1
Cobertura de Precios	497	1.0
<i>Subtotal</i>	<i>30,883</i>	<i>66.6</i>
SAGARPA's Total Budget	46,279	100.0

Source: *Sexto Informe de Labores*. SAGARPA, September 2006

31. **Conditions are favorable for the reassessment of the incentive/subsidy system.** Many of the present subsidies were introduced as a direct or indirect result of NAFTA (and in general of trade opening) to both cushion the income impact of liberalization and allow producers to compete. The largest subsidy, *Procampo*, is formally due to expire in 2008, with the end of the NAFTA transitional arrangements. It has been announced that it will continue, but probably not in the same way. Three things combine to make 2007-2008 crucial years in the reform of agricultural subsidies in Mexico: (1) a new government; (2) the reformulation of *Procampo*; and (3) an increasing consensus that public expenditure in agriculture is inefficient and the incentive system complex and contradictory.

Table 6: Summary Features of the Four Largest Producer Support Programs

	<i>Poor friendliness</i>	<i>Competitiveness Impact</i>
ASERCA's <i>Ingreso Objetivo</i> and <i>Cobertura de Precios</i> Programs	<p>Not poor friendly</p> <ul style="list-style-type: none"> ▪ Coverage mostly reaches agricultural regions with modern farming and regional surpluses ▪ Benefits concentrate on highly commercial farmers--the better off. ▪ Sinaloa, Sonora, Tamaulipas, Guanajuato received more than 80% of the support. Producers in northern states received some 180,000 pesos per person, while in southern states the amount was some 6,000 pesos. 	<p>Mixed</p> <ul style="list-style-type: none"> ▪ Sales volume increased for producers in northeast and central regions, but not in southern states. ▪ Association among producers strengthened: 61% of beneficiaries became producer association members; 17% affiliated with firms; 22% continued operating as individuals. ▪ But only 15% of the beneficiaries achieved integration into supply chains. ▪ 41% of beneficiaries declare that they would abandon agriculture if the program is discontinued.
PROCAMPO	<p>Some poor friendliness</p> <ul style="list-style-type: none"> ▪ Subsidy proportional to farm size; benefits 	<p>Weak</p> <p>No direct impact on competitiveness due to the</p>

²⁰⁸ World Bank, 2005

	<p>hence biased towards larger farmers.</p> <ul style="list-style-type: none"> ▪ Seasonal payments more likely to benefit farmers with access to irrigation. ▪ In 2002 the lower 4 deciles of the rural income distribution received 30.2% of the cash transfer and the top 2 deciles 41.4%.²⁰⁸ ▪ Wide coverage allows reaching poor small farmers in all regions. ▪ New pro-poor measures were introduced: a) farmers with < 1 hectare receive full payment corresponding to 1 hectare; those with < 5 hectare receive a higher payment; b) discounted payment of subsidy prioritizes smaller farmers, women, young, and indigenous groups. 	<p>nature of program being a cash transfer program.</p> <ul style="list-style-type: none"> ▪ 42% of beneficiaries spent the cash primarily on food, clothing, etc. ▪ 54% of beneficiaries reported no increase in production. ▪ 74% of beneficiaries did not change their production crop. <p>Some indirect impact due to income multiplier effect, improved access to credit (use of the subsidy as collateral), and liquidity to buy farming inputs</p>
<p>Alianza para el Campo</p> <p><i>Fomento Agrícola, Fomento Ganadero and Desarrollo Rural Programs</i></p>	<p>Some poor friendliness</p> <p>Middle size farmers benefit the most. The rural development program is the most pro-poor; an estimate of 45% of its beneficiaries are moderate poor, compared with 38% for all three programs²⁰⁹.</p> <p>Main obstacles in reaching the poor are:</p> <ul style="list-style-type: none"> ▪ Low accessibility for landless farmers ▪ Beneficiary contribution required ▪ Technical assistance is more suitable for commercial farmers ▪ Insufficient dissemination 	<p>Positive</p> <p>Positive impacts evidenced in 2004 by:</p> <ul style="list-style-type: none"> • Production volume increased 15.2% as a result of 4.3% increase in productivity and 10.4% increase in cultivated surface. • Enhancement of post-harvest component is bringing about positive changes for commercialization • Household income of participants increased by 17.9% • Crop change remains negligible. • Promotes conversion into more environmentally friendly irrigation system reducing water use
<p>Energy Subsidy</p> <p>2005 Budget US\$ 557 million²¹⁰</p>	<p>Not poor friendly</p> <ul style="list-style-type: none"> ▪ Per KWh subsidy benefits heavy water users ▪ Approximately half of the subsidy goes to three states (Chihuahua, Guanajuato, Sonora). 	<p>Positive (but with high environmental costs)</p> <ul style="list-style-type: none"> ▪ Majority of export farms use groundwater ▪ About 100 water aquifer in north/central regions are overexploited, and water tables are dropping 1 to 4 meters every year

32. **Issues related to farmers' support programs²¹¹**. Some of the issues that need to be addressed are:

- Lack of clear rationale in the present incentive/subsidy system, which is the result of an accumulation of past decisions of subsidizing particular farming sectors, regions, crops or aspects of farming. Each subsidy was largely decided independently of the others as a result of particular circumstances or pressures. Once introduced, subsidies have proven difficult to phase out. The resulting system is complex, does not respond to any long term strategy, and makes little economic sense (inter alia, incentives are not aligned with comparative advantages). As examined before, the system has not generated substantial agricultural growth or significant improvement in TFP in agriculture. It needs overhauling.

²⁰⁹ World Bank, 2006

²¹⁰ OECD. Agricultural Support Estimate database.

²¹¹ Some of these issues will be addressed in a World Bank study examining full market integration under NAFTA and related opportunities risks and policy issues in Mexico.

- Subsidizing private vs. public goods. Mexican agriculture is characterized by large subsidies/transfers to private individuals, and paucity of investment in public goods (logistic infrastructure, research and extension systems). Yet, investment in relevant public goods is more conducive to agricultural growth than private subsidies (see World Bank, 2005a).
- Subsidies as a substitute for needed but little accessible farm credit. Lack of credit is an important reason why farmers need subsidies to stay in business and to compete.
- Need to segment the subsidy/incentive system oriented to the small farming sector from that oriented to commercial farmers.
- The equity issue. Is there justification to the present inequity in the geographical and personal distribution of subsidies?
- The macro and fiscal issue. To what extent can a middle income country like Mexico afford a subsidy system for its farmers comparable to that of the richer OECD countries?
- Institutional issues. Efficiency in agricultural public expending is jeopardized by the absence of multi-annual budgeting, which militates against certainty in incentives/subsidies; the present budgetary process, which does not help using the agricultural budget as a rational policy tool; and shortcomings in program implementation and program coordination failure.

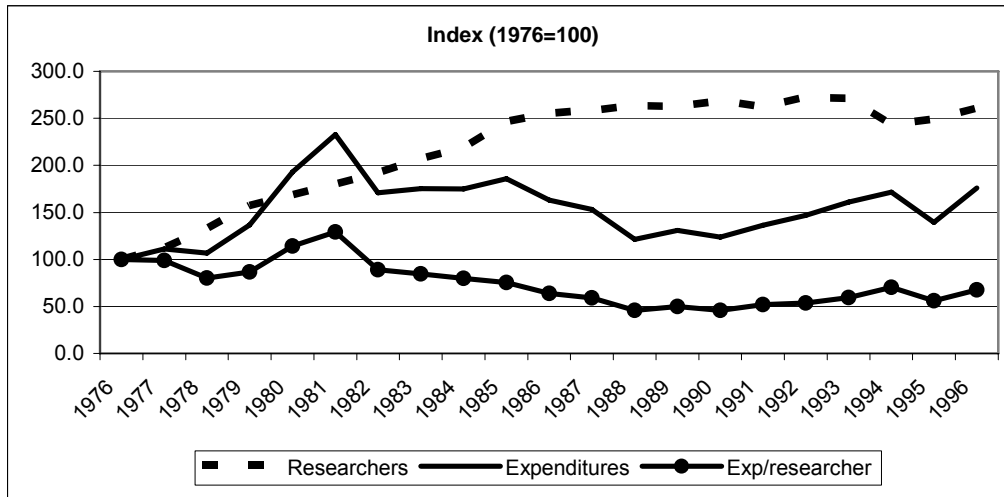
A Weak but Transforming Agriculture Innovation System

33. **The Mexican agricultural innovation system was in crisis in the 1990s for three reasons: (1) declining performance of the national research institute, INIFAP, (Instituto Nacional de Investigaciones Forestales y Agropecuarias); (2) dismantling of the national extension service; and (3) greater pressure to modernize technology under stiffer competition brought about by liberalization²¹².** The Mexican agriculture research and extension system shares similarity with that of other countries in the region; a state owned, autonomous, highly centralized, nationally financed institute of research, with a wide geographic and thematic mandate, including both research and extension, dependent on the Ministry of Agriculture. This model produced some positive results in the past but was exhausted by the beginning of 1990s, unable to respond adequately to producers' needs. Also, public expenditure in agricultural research decreased since the early 1980s both in absolute terms and, especially, when measured as expenditure per researcher (Figure 11).

34. **Recent reforms have improved the overall health of the system.** The Mexican government is showing a renewed interest in research and technology transfer as instruments to support its agriculture and industry. In 2001 it launched an initiative to double Mexico's R&D investment from 0.5% to 1.0% of GDP in five years time. In agriculture, recent reforms have focused on increased competition among research suppliers, greater stakeholder participation in priority setting, and decentralization, but it is still far from what the country needs. In particular, agricultural research agencies still receive most of their funding from the government in the form of a core contribution. This contribution, however, only covers salaries and a small portion of the operating and capital costs.

²¹² Roseboom (2004)

Figure 11: Development of research staff, expenditures and expenditures per researcher in the public component of the agricultural research system



Source: Roseboom (2004)

35. Resources to cover research projects are being disbursed increasingly through competitive Science and Technology (S&T) funds. By placing the operational research budgets in these various S&T funds, the ability to set agricultural research priorities has been shifted away from the implementing agencies to the competitive funding schemes. In many of these schemes users have (at least on paper) a strong say in setting research priorities. By controlling only a part of the budget, these schemes more-or-less control the whole research agenda. Nevertheless, the implementing agencies still make important strategic decisions related to staffing and infrastructure, which very much influence the type of research that they can offer. **Hence one can notice important discrepancies between at one side, a demand-driven research agenda and on the other side, the research supply side, which does not (and often cannot), adapt itself fast enough to the changing demand.** One cannot avoid such imbalances completely, but the overall impression is that they are quite large in the Mexican research system and hence the need for a better overall coordination. In particular more foresight on the type of research needs in the future is needed in order to steer long-term decisions on investments in research infrastructure and human resources. Moreover, some overall coordination among the many different competitive funding schemes and other funding sources is needed.

36. **The massive public extension system of the 1970s was dismantled without adequate replacement.** Public agricultural extension started in the 1940s and grew rapidly in the 1960s and 1970s to reach 21,500 staff in 1977-79. It originally focused mainly on the irrigation districts. In 1981, the Extension Department at the Ministry of Agriculture was disbanded and its functions transferred to INIA and the irrigation districts²¹³. In the second half of the 1980s, the extension service was severely reduced and reformed to introduce decentralization, private implementation, and producers' co-payment. It concentrated mainly on commercial producers, with marginal areas being serviced by PRONASOL (*Programa Nacional de Solidaridad*). This parallel approach failed and public extension was almost abandoned in practice in 1993-94. It

²¹³ Eckboir et al. (2003)

was partially revived later on through private service providers in the framework of the *Alianza para el Campo*, particularly through Prodesca (*Programas de Desarrollo de Capacidades en el Medio Rural*), a program operating in the framework of *Alianza* to provide training and technical assistance to small farmers. The scope, however, is very limited.

37. There are three shortcomings of the agriculture research and extension system. These are: (1) lack of response to actual demands by producers due to a lack of communication among researchers, extension workers and producers; (2) dependence on scarce federal funding, with very few funds coming from state governments and the private sector; and (3) dismantling of the public extension services without an adequate replacement.

38. Reforms are being introduced to address the shortcomings in the research system. The main reforms are: (1) a competitive nationwide agricultural technology fund for up stream research, jointly financed by the National Council for Science and Technology (CONACYT) and the Ministry of Agriculture; (2) state level research foundations, called *Fundaciones Produce*, which provide competitive funding for adaptive technology research, validation and transfer; (3) the Mexican Fund for Agricultural and Forestry Research (FUMIAF), created to help INIFAP handle agro-industry funding; and (4) competitive “mixed” science and technology funds, financed by CONACYT and state governments, which target local agricultural research issues. The first three mechanisms were introduced in the mid 1990s, and the fourth in 2001²¹⁴.

39. The *Fundaciones Produce* represent a valuable innovation, but they need strengthening. The *fundaciones*, created in 1996 as part of *Alianza*, are administered by representatives of producers. Their objective is to bring agricultural research closer to farmers’ demands and to reflect regional priorities in the innovation system. Activities are nationally coordinated by COFUPRO (*Coordinadora Nacional de las Fundaciones Produce*). Funding comes from the Federal Government mostly. Thus, 82 percent of the MxP 570 million 2005 budget came from the federal budget, and 18 percent from state governments. Producers may provide some limited co-financing, usually in land and labor. Research is carried out by individual researchers or institutions through a competitive funding process. Of the 1,005 projects financed in 2005, 80 percent were for primary activities and only 5.6 percent for transformation. INIFAP is the main research institution engaged in *Produce* projects, but its participation has declined from around 80 percent in 1996 to 57 percent in 2001 and 37 percent in 2005. Universities have gained importance, with a 22 percent share of funding in 2005, while the private sector, service providers and the *Fundaciones* themselves, increased their participation to 12 percent. Agro-industries participate with only 1 percent.

40. The main challenges of the *fundaciones* are: (1) bringing about closer regular interaction between all participants of the innovation system; (2) developing financing instruments to facilitate cross-institutional collaboration in agricultural research and to enable multi-year projects; (3) increasing the participation of the private sector; (4) strengthening technology dissemination; (5) strengthening supervision and the evaluation of project outcomes; and (6) increasing the limited level of funding.

²¹⁴ Roseboom (2004).

41. **There is a key role for public sector involvement in technology development and transfer.** Without significant increase of public sector involvement in these areas, agricultural competitiveness may be impaired not only in the domestic but also in the export market. Thus, a study by Málaga, Williams, and Fuller (2001) concludes that Mexican investments in yield-enhancing technologies could have a greater impact on the future level of Mexican exports of tomatoes and other fresh vegetables to the United States than the elimination of US vegetable import tariffs under NAFTA.

Food Safety Issues

42. **The issue of food safety is becoming more important as free trade develops and exports become an integral part to the success of Mexican agriculture.** A system is required that has international credibility and adequate resources for surveillance, education and interaction with the private sector. The importance of food safety is also a result of growing domestic concern about the quality and safety of foods, and the overwhelming importance acquired by supermarkets in food retailing.

43. **The two main agencies responsible for food safety are SENASICA, an agency of SAGARPA and COFEPRIS, an agency of the Health Ministry.** SENASICA, which has a Food Safety Directorate, is mostly responsible for farm production and processing and is mainly concerned with meeting the standards required in international markets. It has a strong presence at the farm level. COFEPRIS is legally responsible for food safety in national markets both from internal and external sources and its presence is strong in processing plants. There is recognition in these two agencies of the need to improve the actual system to ensure better consumer protection and meet market needs. Both agencies have well trained personnel and have formal relations with their partners in trade agreements as well as being active participants in the SPS/WTO and Codex Alimentarius.

44. **Although strong, the agencies show some weaknesses that need to be overcome.** Thus, there are serious problems of coordination, lack of clarity of functions and responsibilities, and lack of coherence in the implementation of policies. There is no monitoring of how the system works, and there is a general opinion that there are gaps and inefficiencies in the system and that opportunities, especially in export markets, are being lost. There is also the issue of the use of contaminated water in agriculture, which is the responsibility of a separate entity, SEMARNAT.

Moving Forward in Agriculture Export Promotion

45. **Key to further export growth is not so much market access as removing internal constraints.** Policy recommendations to boost exports often focus on issues limiting access to foreign markets. Mexico, however, has already quite successfully tackled market access through its aggressive bilateral negotiation strategy. For Mexico, then, further export growth requires enhancing competitiveness through increased productivity in the production and marketing chains. While some specific export promotion efforts need to be included in the policy mix, the key component of any successful strategy to enhance agricultural exports must be substantial efforts in critical areas such as irrigation, transport infrastructure, and technology generation and dissemination. These areas are examined below.

- Targeted promotion to diversify and expand Mexican export markets. In general, because of the small amounts involved, the marginal return to increased investments to promote Mexican exports in the EU, Canada, and Japan is likely to be low. Nevertheless, some specific Mexican items have found niches in those markets which might be exploited by targeted export promotion efforts intended to develop strong relationships with specific foreign buyers and to brand Mexican products. These items include beer, avocados, mangoes, guava, peppers, dried legumes, and possibly grapes. Targeted export promotion could also be used to reverse the downward trend of the Mexican export share of cucumbers, asparagus, broccoli, squash, strawberries, eggplant, and cut flowers. Targeted assistance instruments could include export credit guarantee programs, export incentive programs for specific high priority products and markets, market research assistance, product and market specific export counseling, and assistance with documentation and other export requirements.
- Improvement in irrigation. Because of their nature, most Mexican agricultural exports require irrigation. Thus, improving irrigation systems is critical to sustaining export growth. This is not limited to just hydraulic infrastructure but also includes institutional strengthening to improve the technical, administrative and financial management capacities of the water sector to improve irrigation efficiency. The need is particularly critical in the eastern and central regions of Mexico characterized by a large number of small farms with limited access to resources to expand production. Since water scarcity is a great problem in major agricultural areas and agriculture is the dominant user of water, water saving techniques need to be encouraged to raise water productivity.
- Increased public investment in trade-related logistic infrastructure. Particular targets would include: additional bridges, access roads, and rail lines to cross the border; additional commercial inspection facilities; the modernization and expansion of Mexican port facilities; updating and expansion of intermodal transportation facilities; and improved highways to handle the rapidly growing truck traffic. In addition, significant attention must be given to reducing the time and cost of currently lengthy and cumbersome customs clearance procedures at US border crossing points.
- Increased public investment in agricultural research and extension. Critically needed are investments in research and extension to adapt and disseminate technologies developed in other countries and the generation of new technologies adapted to the conditions of Mexican resource endowments, particularly for small and medium-sized agricultural and agribusiness firms. Research is also needed on a broad range of topics related to economic, animal, and plant systems; agro-processing; business, risk and resource management; and a host of other topics to enhance and support decision-making all along the supply chains.
- An enhanced market intelligence system. Because globalization is forcing markets to operate in fundamentally different ways, agricultural producers and agribusinesses need to function in different ways too. Globalization is forcing marketing and distribution systems to be more tightly aligned with producers. Unfortunately, in Mexico the generation and flow of information needed by agricultural producers and agribusinesses is not keeping pace with the growth of globalization. Although much has been done to enhance market information, a

large segment of Mexican agricultural producers and agribusinesses still lack access to critically needed information to manage their risks and make sound production and marketing decisions.

- Mexico should develop a new national policy for food safety. This should be the responsibility of the *Oficina de la Presidencia para las Políticas Públicas y Crecimiento con Calidad*, and would include a new institutional model and also a revised legal framework necessary to clarify roles and responsibilities of the new institution(s) and leading to a new integrated system with public and private participation. The institutional design should be based on a holistic vision of food chains ranging from primary production through processing, marketing, distribution and consumption both for internal and export markets. There are many models that could be looked at ranging from one agency responsible for all aspects to various agencies that are coordinated. It is recommended that Mexico should examine some of the models that have been successful. The Food and Agriculture Organization has ample experience in this area.

Decentralization of Rural Development Programs

Advances in Decentralization

46. **Steps towards decentralization of rural programs started in the mid-90s and accelerated from 2001 onwards.** SAGARPA's *Alianza* program has been at the forefront of decentralization; it has in fact been the main vehicle for it. The three main decentralized programs, the so-called *programas federalizados* of *Alianza*, which are the Agriculture, Livestock, and Rural Development programs, represented on average 61 percent of all *Alianza* public resources (i.e. contributed by the federal and state governments) in 1999-2004²¹⁵. The Rural Development Program of *Alianza* is the only production-oriented rural program in the country that has been decentralized (partly) to the municipal level. The rural decentralization process started in the mid-90s and was intended to cover not only program implementation and program funds but also the transfer to state governments of SAGARPA's staff, infrastructures and other resources, usually referred to as *proceso de federalización administrativa*. This is logical because transferring program responsibilities to state governments required additional resources to discharge those responsibilities.

47. ***Federalización administrativa*, however, is a protracted process ridden with difficulties, which has only partially advanced.** The main problems are: (i) differences in salary and other labor conditions between SAGARPA and state administrations, which create problems with the unions; (ii) reluctance of state governments to take on SAGARPA staff many of whom are of advanced age; (iv) administrative difficulties to pass on to the states the budgetary resources to cover the operational costs of the staff and infrastructures transferred; and (iv) the cost of the entire operation (compensation for staff laid off, salary increases to level off staff, revamping of infrastructures, and others). The strength, nevertheless, of state *secretarías* in charge of agriculture and rural development is higher now than it was a decade ago. Also, SAGARPA interacts and shares decision making with these *secretarías* much more than it used

²¹⁵ Other *Alianza* programs have also been decentralized but to a lesser extent. The above three programs are the main ones, and account for an overwhelming proportion of decentralized funds.

to be the case. There are three pilot states (Jalisco, Michoacán and Nuevo León) where SAGARPA staff is in principle equally accountable to SAGARPA and to state governments.

48. **Decentralization of programs of other federal *secretarías* active in RD has advanced little.** Some progress, however, has been made in *deconcentration*, i.e. assigning larger roles to the *delegaciones* (state offices of the federal secretarías). SAGARPA itself runs in a centralized way more than one third of the funds of Alianza (the so-called programs of *ejecución nacional*), as well as most programs other than *Alianza*. The situation, however, varies much across RD programs because of the different institutional arrangements under which they operate. Programs are multi-dimensional phenomena, and the degrees of decentralization can be very different along the dimensions involved.

49. **The deconcentration advances have been modest.** The reason for this is due to the requirement of deploying central staff to the states and possibly, recruiting additional staff to beef up state offices. Both things are difficult to do. Local staff have mixed feelings vis-à-vis deconcentration; they like it because it gives them more power and they feel it allows them to do a better job, but they also resent it because it increases their work load.

50. **The Ley de Desarrollo Rural Sustentable (LDRS) was a step forward in decentralization to the extent that it created institutional platforms,** like state, district and municipal rural development councils (Art. 24), which help giving sub-national authorities more stake in the decision-making process in rural programs. Also, LDRS mandates the signing of *convenios* (legal agreements) between federal *secretarías* and the states to implement sectoral programs (Art. 27).

51. **The LDRS has other positive effects on decentralization.** The operational rules of *Alianza* have strengthened state and municipal councils by making active use of them for program management, and have added new decentralization platforms such as the *fideicomisos*²¹⁶. A positive function of the RD councils is to facilitate discussion and the reaching of ad hoc cooperation agreements between sub-national authorities and staff from federal *secretarías*. Little by little, programs other than *Alianza* are making use of these platforms, but this is only starting.

52. **Altogether, notwithstanding the progress made during the last decade, the degree of decentralization of rural programs can be considered rather limited**²¹⁷. The important point is that, as things stand today, it is not possible for state governments to have adequate control of the rural agenda in their states. The majority of public funds spent on rural areas come from federal sources, and the capacity of state governments to influence the allocation of these funds is small. Their ability to shape the objectives and rules under which rural programs operate in their states is also very limited. State governments in some cases can negotiate and agree with

²¹⁶ These are trust funds created in financial institutions where the incumbent federal *secretaría* and the state government deposit the funds required to implement an agreed program. *Fideicomisos* have two advantages: (i) once they enter the *fideicomiso*, funds become mixed and indistinguishable, independently of their source; and (ii) they are not subjected to ordinary budgetary procedures, and hence funds need not be returned to the national treasury if they are not spent within the fiscal year. The use of *fideicomiso* funds is authorized by a joint committee known as *Comité Técnico*, and can be audited by the *Secretaría de la Función Pública*, under Mexico's transparency legislation.

²¹⁷ Unfortunately, figures do not exist of public expenditure in rural programs broken down by their degree of centralization/decentralization.

central authorities on the distribution of resources among sub-programs of a certain program. That is, for instance, the case with the decentralized programs of *Alianza*, but not with most other programs from SAGARPA or other *secretarías*. They can also try to attract more funds for the state from federal programs, mostly through the offering of counterpart funding or through sheer political negotiation. State governments may also participate in the decision-making process through which priorities are established and proposals approved in some demand-driven programs. This is the case with the decentralized programs of *Alianza*, and is slowly taking place in programs from other *secretarías*. Where state governments are powerless is in (1) the design of the programs and their operation rules, and (2) the transfer of resources across programs, even across programs of the same *secretaría* although there may be more room for negotiation in this case.

53. **At present, with exceptions, state governments are mainly observers of the RD programs that federal *secretarías* carry out in their states.** To have some say in these programs, they have to contribute counterpart funds. This would in principle be reasonable, if only state governments had enough funds to contribute to all the many programs. In other cases, state contributions are simply not envisaged, the programs being by design strictly national. In no case do state governments decide on the operational rules of federal programs or decide on the allocation among different RD activities of the sum total of funds spent in the state by federal *secretarías*. As mentioned before, the situation is slowly improving, with *Alianza* being the main breakthrough. The creation of new institutional platforms and *fideicomisos* is an important step forward, but their true empowerment and their generalized use in many different programs is only starting.

Transparency and Objectiveness

54. **Progress has been made in the use of transparent and objective criteria for the allocation of program funds, more perhaps than in other areas.** When program funds are distributed across states, the use of objective criteria is now the rule. Thus, for instance, *Alianza* funds, which used to be allocated according to bilateral negotiations between SAGARPA and the states, started being apportioned according to an objective formula in 2001. The creation of RD councils at the state, district and municipal level, mandated by the LDRS, is also an advance in transparency because it allows representatives from civil society and sub-national governments to partake in decision-making in the implementation of some RD programs. Such participation discourages arbitrary decision-making and makes decisions more transparent. The weakness, however, of these councils, impairs their operation as a strong system of check and balances.

55. **Program operation rules have brought more transparency to the eligibility criteria of beneficiaries, the selection of proposals, and the various processes involved in program implementation.** To some extent, however, this is achieved at the expense of operational effectiveness and of the devolution to sub-national governments and government-society decision-making platforms of the ability to decide locally on priorities and the use of funds. The extreme length and complexity of the operation rules of most programs²¹⁸, designed to keep off any discretionary powers on the part of project operators, make the process more transparent to

²¹⁸ Thus, for instance, the 2003 operation norms of *Alianza*, currently in use (with a few amendments), have 124 articles many of which are one or more than one pages long.

those capable of reading and understanding the rules; however, it introduces many operational rigidities and makes it difficult for local agents to adapt program objectives to local conditions.

56. **Complexity of the rules makes it difficult for potential beneficiaries to understand the characteristics of the programs.** Hence, they tend to rely on information from intermediaries, like municipal authorities, government agents, officials from unions or other rural organizations, and service providers, who may themselves not understand well the rules and may have their own agendas. Complexity, thus, by militating against dissemination, reinforces clientelistic ties and discriminates against those who, because of educational level, time constraints or remote location, have less access to information. How to handle this trade off between transparency, on the one hand, and effectiveness and local empowerment, on the other, to avoid the excessive regulation of all possible program aspects, is a difficult matter which warrants more attention than it has received so far.

57. **Program evaluation is an area related to transparency where progress has also been made in the last years.** There is a requirement from Congress that all main programs be evaluated annually by external evaluators, usually university departments or consulting firms. Evaluations are of unequal quality, but some have good professional standards, like those, for instance, of *Alianza*, *Oportunidades*, and *Opciones Productivas*. The good practice should be noted of evaluation documents being made available to the public, usually in the Internet page of the corresponding program or *secretaría*. Evaluations have proven useful for giving feedback to program designers and operators, and to disseminate information to the public on program characteristics and performance.

58. **The main limitation of the current system is that there is no follow-up mechanism for evaluation results.** To make evaluations truly relevant, an action agenda of program improvements based on the results of the evaluation exercise should be agreed upon by the incumbent *secretaría*, the evaluators, and a third party (from Congress, SHCP or *Presidencia*). Action on this agenda should be monitored.²¹⁹ For the evaluation system to be useful, annual evaluations seem excessive; it would be better to concentrate resources on carrying out good biannual evaluations.

Issues and Challenges in the Implementation of Production-Oriented RD Programs

59. **The analysis of *Alianza* decentralized programs --the Agriculture, Livestock, and, especially, the Rural Development Programs--** allows us to illustrate some of the issues and challenges found in the implementation of production-oriented RD programs. The experience can be summarized as follows²²⁰:

- **State and municipal authorities tend to contribute few counterpart funds to RD programs.** Thus, on average, in 1996-2004 state governments contributed 16 percent of the entire resources of *Alianza*'s decentralized programs. Different factors seem to influence the decision of state governments to contribute counterpart funds, which explains the considerable dispersion of contributions that exists across time and space.

²¹⁹ See World Bank (2005) Chapter 6, on this and other aspects of the evaluation of rural programs in Mexico.

²²⁰ See for details World Bank (2006).

- **State level platforms such as the *Consejos Estatales de Desarrollo Rural Sustentable* (CEDRS) and the *Comités Técnicos* of the *fideicomisos* have shown to be useful for government officers from the state and federal entities to interact and discuss issues related to RD in the states.** The *Comités Técnicos* also play a valuable role in the concrete implementation of decentralized programs. The effectiveness of these platforms varies much across states. In general, technical committees of *fideicomisos*, which are smaller bodies with clearly defined functions, work reasonably well in most states. More variance exists in CEDRS, but on the whole they have not been able to ensure good coordination within the state of RD programs from different federal *secretarías* or the harmonization of funding.
- **Notwithstanding the existence of an objective formula for the allocation of *Alianza* funds to the states, this allocation is regressive, when measured per capita (of rural population) and compared with the marginality index of the states.**
- **Late approval and release of implementation norms and lengthy implementation procedures considerably delay the release of funds, which often occurs the following year.** It would seem that the decentralized programs of *Alianza* (and other decentralized programs which benefit from a *fideicomiso*) tend to follow in practice a different fiscal year: one that goes from May to May or June to June, rather than from January to December.
- **The measured impact of *Alianza* supports regarding the income, employment, assets and technology position of beneficiaries is significant.** It is greater on income, technology and assets (averages from 13 to 21 percent) than on employment (average 3 percent), and larger for poorer than for better-off beneficiaries.
- **Multiplicity and overlapping of programs, complexity of operation rules, and frequent changes in program characteristics and eligibility criteria, make it difficult for beneficiaries and even for program operators and sub-national authorities to be aware of the available government offer of RD support.** Potential beneficiaries have to rely on information from intermediaries who may not understand well the norms and may have their own agendas. This reinforces clientelistic ties and discriminates against those with less access to information.
- **Private providers of technical services are the main interface between programs and beneficiaries, and the main conveyors of information of program opportunities and rules.** Their situation, as well as that of field level government operators, who are normally recruited on short-term ad hoc contracts, is different from that of teachers or health workers. They are not unionized, have no entitlement to secure employment or social security benefits, and receive little economic or moral incentives to do a good job. Nor do they receive technical backstopping, systematic effective training or support to operate as networks. These “street level” operators are the weakest link in the implementation chain.

- **Since *Alianza* decentralized programs are demand-led, investment support proposals come from rural producers.** In principle, in view of the shortage of funds, funding decisions must be made according to quality and cost-efficiency criteria. In practice, however, it is difficult to prioritize investment using these criteria because of the myriad of small and often very similar proposals. Hence, the most frequent rationing mechanism used consists of *first-come-first-served* and *completeness-of-documentation* criteria. Priority is given to producers who are first in hand in the proposals duly completed and with all the attachments required, when the window opens.
- **The *Consejos Municipales de Desarrollo Rural Sustentable* (CMDRS) are a step forward in the creation of decentralized participatory structures for the implementation of rural policies and programs, and to build public-private-civil society alliances.** Unfortunately, most municipal councils do not have the capacity to become effective promoters of local economic development. The underlying problem seems to be that the municipal level is not the most appropriate one for this purpose. Small rural municipalities do not have the technical staff and sophistication required to carry out strategic planning and the design of innovative rural agendas. CMDRS find it difficult to articulate sound economic criteria to prioritize investment demands. When they have to exercise a rationing authority they tend to fall back into simplistic egalitarian rules of the type “one community one project”, independently of the objective merits of the proposals and of the needs of the communities. Also, CMDRS do not seem to have the capacity to formulate clustering strategies for investment proposals; the spontaneous tendency at this micro level is to promote atomized rather than clustered investments. The municipal rural space in Mexico is too small and municipal administrations are too weak and focused on other activities for municipal councils to be effective economic governance entities.
- **The *Consejos Distritales de Desarrollo Rural Sustentable* (CDDRS), operating at a regional level, would be in a much better position to promote local economic development –a role in a way foreseen in the LDRS.** Unfortunately, insufficient attention and powers have been given so far to these councils, much less than to the municipal ones. Although they have been created in most states, their existence is either little noticeable or they serve more to exchange information among government offices and municipal authorities of the region. This seems to be due to the lack of a technical body answerable to the CDDR and to the lack of command of investment resources by these councils.

A Proposal to Decentralize Productive-Oriented Rural Development Programs

Why is Decentralization of RD Programs Necessary?

60. **We have seen the advances made over the last decade, and particularly in the last five years, in the decentralization of RD programs.** Notwithstanding these advances, program decentralization is only starting and much remains to be done. In particular, (i) the immense majority of funding for RD programs comes from federal *secretarías*, and it would be naïve to think that it would come without strings attached; (2) many programs are still not decentralized to any degree; and (3) operation rules are fully decided at the central level.

61. **Issues related to decentralization are closely linked to issues of lack of coordination and harmonization of funding of different programs from different federal *secretarías*.** Lack of sufficient decentralization of RD programs prevents state governments from being true masters of the rural agenda in their states. Even a progressive law such as LDRS, which insists much on federal-state coordination and creates instruments for such coordination, gives no participation to state governments in the top RD governance bodies, the CIDRS and the *Consejo Mexicano para el Desarrollo Rural Sustentable*, and locates at the federal level the initiative in the various aspects of RD policy. Since state governments do not have control of the rural agenda, they do not interiorize the political and economic costs and benefits of rural development actions, successes and failures. There is an ambiguous state of affairs where neither the federal government nor state governments feel truly responsible for RD outcomes.

62. **A decentralized system with a strong role of state governments, where they would be driving the rural agenda, would be the best way, probably the only one, to overcome the problem of lack of program coordination and harmonization of funding.** Also, by making state governments truly accountable of rural development outcomes in their states, decentralization would force them to interiorize all costs and benefits, thus promoting efficiency and equity in resource use. Finally, devolution to the states of RD resources and functions would greatly facilitate the application of a territorial approach to rural development.

The Proposal

63. **There are in principle two ways to proceed.** One would be incremental, similar to the one followed over the last years, and would be based on the use of existing instruments. The other would be more audacious and would try to achieve major devolution to the states of RD resources and functions in a reasonably short number of years, say within one political administration. We favor this second way.

64. **We propose a decentralization model of the type existing in various countries of Europe,** like Spain, Italy and Germany, where the equivalent to the Mexican states –the *autonomías*, *regioni* or *lander*— are the pivotal entities of RD authority and policy making. The difference, of course, is that in the case of Mexico there is not a European Union with a strong RD policy to take up part of the policy and funding authority. We illustrate in Box 1 the working of this model for the case of Spain.

Box 1: Decentralization of Rural Development Functions in Spain

Although not formally called a federation, Spain has a federal-type constitution. Each of the country's 17 regions or *autonomías* has its own government chaired by an elected president, and has an elected regional parliament. The degree of devolution of government functions to regional governments (*gobiernos autonómicos*) is large, and agriculture and rural development is not an exception to this; on the contrary, it is one of the areas where devolution has advanced most.

All main RD functions belong to regional governments. Constitutionally, the central government can only exercise RD functions when they affect the fundamental ordering of the national economy. An example are the basic aspects of land rights, like the definition of public and communal lands or of the major reasons for expropriating agricultural lands, which does not preclude regions from having their own land programs, including agrarian reform laws. Another example are the basic aspects of irrigation policy, in attention to its relation to the national administration of water resources—a key issue in Spain. The preparation, however, by the central government in recent years of a broad national irrigation plan generated resentments in some regions. An important national function is representing Spanish RD interests in the EU and at international negotiations. Yet, as a rule, central authorities consult with regional governments all negotiating positions relative to issues that especially concern the latter. There is also a conference of regional RD authorities with which central governments regularly consult matters relative to national responsibilities.

RD programs in the regions fall into two categories: those originating in the region, and those originating in the EU. There are no central government RD programs. EU programs have tripartite funding, from “Brussels,” “Madrid,” and the regions, usually in proportions 50:25:25. “Madrid’s” funding contribution is not mandatory; the *gobiernos autonómicos* can provide the entire counterpart to EU funds, in which case the national government has no say in the program. Usually, programs come with 50% funding and overall objectives and guidelines from Brussels, Madrid adds 25% funding and some general adaptation of Brussels’ norms to Spanish circumstances, and the regional government contributes the remaining 25% of funds, does the concrete design, and prepares the regional implementation plan. Programs originating in the regions are designed and financed by the *gobiernos autonómicos*. There are no fiscal transfers to sub-national governments in Spain earmarked for RD activities outside the contribution to EU programs; other RD activities carried out by regional governments are financed from their regular budgets.

Municipal authorities barely have RD functions or programs in Spain. Rural municipalities are usually small and lack the resources and competence to invest in RD. In general, their main participation is through their presence in and eventual financial contribution to the Local Action Group of the European Leader program—a territorially based rural development program to promote off-farm innovative employment and income sources in rural areas.

65. In order to achieve this type of devolution four things would be required:

- **Transferring to the states most of the funds of production-oriented RD programs of federal *secretarías*.** This would be done in the form of block grants where the funds from different programs would be merged. The national government would still reserve for itself funds to carry out RD programs considered to be strategic and to require national-level execution. The distribution of funds to the states would be done according to an objective formula, based on demand considerations, which would not be regressive.
- **Phasing out the corresponding federal RD programs** and letting state governments replace them with their own programs, so that they can be true masters of the RD agendas in their states. State programs would be instruments to carry out state RD strategies with verifiable objectives and outcomes.

- **Pushing ahead with *federalización administrativa***, so as to transfer to state governments the assets, staff and other operational resources of federal *secretarías* required for them to design and implement their own RD agendas.
- **Establishing** (i) national minimum standards and benchmarks to be respected by the states; (ii) an agreed upon formula for the distribution of funds among the states, and (iii) a national monitoring and evaluation system.

66. **We examine below the functions envisaged under the decentralized system proposed.** We concentrate on functions related to the operation of RD programs oriented to the creation of income and employment opportunities. We leave aside areas such as land policy and the regulation of property rights, natural resources management including irrigation, sanitary and phytosanitary systems, agricultural research, international trade, and other areas relative to national regulatory systems or the supply of national public goods. Each of these areas would require different levels and forms of decentralization (or centralization) which cannot be discussed in this document²²¹.

The Federal Level

67. **For an effective operation of the system, the federal government would have to modify its *regulatory role* in a way consistent with the devolution to lower levels of government of the design and operation of programs.** The stringency characterizing the current regulatory framework does not guarantee the attainment of policy goals, and the rules of operation of programs have tended to create a complex implementation system that is difficult to oversee. Under the current framework, policy responsibilities are obscured because of the multiplicity of players involved in implementation.

68. **Under the scheme proposed, federal regulations regarding RD productive programs would consist of broad guidelines, in which national minimum standards could be set for the design and operation of RD programs by the states.** In particular, the federal government could:

- promote geographic equity;
- prevent disproportionate disparities across regions in the type and amount of benefits received by program beneficiaries;
- prevent the creation of situations where producers from different states are treated differently vis-à-vis international competitors; and
- monitor and evaluate independently the RD strategies designed and implemented by the state governments.

69. **By focusing on strategic issues only, federal norms would allow states to create their own regulatory instruments, thereby reflecting more accurately local needs and priorities.**

70. **A drastic shift would need to be made from the current funding system to one that truly devolves decision-making power to sub-national levels of government.** Under the

²²¹ Thus, for instance, the optimal decentralization of natural resources management is a very complex issue which must be approached in a different way from the decentralization of productive RD programs.

prevailing system, each budget line is earmarked for certain purposes, precluding sub-national governments from making adjustments. Federal funds for RD could, instead, be transferred as a block grant not linked to any particular program. Only in this way could sub-national governments have real power over the allocation of resources and exploit the potential benefits of devolution. To ensure transparency, the allocation of funds could continue to be regulated by a federal formula. The formula could be stable over time and include mechanisms to sanction states that do not comply with their commitments.

71. ***Federalización administrativa.*** **The devolution to state governments of program design and implementation and the adoption of a block grant approach to RD funding** would necessarily imply the transfer to state governments of the relevant staff, facilities and other resources from the concerned *secretarías*, alongside with the recurrent costs to operate them, so that state governments have the means to design and implement their rural agendas.

72. **The federal government could continue to have an important role in the evaluation of RD programs**, independently of whether state governments choose or not to carry out their own evaluations. Since state RD programs would be largely funded by federal resources allocated by Congress through the budgetary process, SHCP and Congress would still have a duty to monitor the proper use of those resources and the quality of the investments. The evaluation process is part and parcel of this. Federal authorities could be involved in the discussion of the action agendas mentioned earlier in this Note deriving from the evaluation exercises, and in monitoring the implementation of those agendas. The formulation by state governments of RD strategies and of the programs to implement them, with verifiable objectives and outcomes, as a condition for fund transfers, would facilitate M&E from the federal government. Auditing of the proper use of block grants would be a federal responsibility, independently of the auditing that state legislative bodies would like to impose.

73. **There would be room for the federal government to design and operate certain RD programs** that are considered strategic and in need of nation-wide implementation, as well as to design and operate pilot programs.

The State Level

74. **State governments would have the initiative in policy making for rural development in the states.** They would prepare a long-term RD strategy and monitor its implementation and outcomes, design and implement the RD programs that they consider most appropriate for the state, and allocate resources to them. The long term RD strategies of the states and their correspondent programs would be built around the regional strategies and programs discussed below when we examine the regional level.

75. **Decision-making councils at the state level could become focal entities in the design and coordination of rural development programs.** Under a more flexible federal regulatory framework, the CEDRS could generate rules for the operation of rural programs within the states and be in charge of their oversight. They could also be the platform where states' RD strategies are discussed and validated.

76. **Program coordination at the state level.** The objective of coordination and harmonization of funding would look very different under the decentralization system proposed, since most RD programs operating in a state would be designed within the state in accordance with a state RD strategy and under the supreme authority of the state governor. State governments or the CEDRS could decide to move resources across programs as well as to create and oversee the necessary coordination mechanisms.

77. **CEDRS could also play a more active role in establishing mechanisms for prioritizing the use of resources.** For instance, the stratification of rural producers is an important planning instrument included in *Alianza* rules, which at the moment few states use. There would be a much greater incentive to use this or similar instruments under decentralization.

78. **Another responsibility of the states would be the setting of quality standards to regulate the provision of technical assistance, and the promotion of an improved market of technical services.** At the present time, private providers of services operate in an uncoordinated fashion, with little or no access to training, specialized technical advice, organized links to research outfits and research information, and with no networking. They also lack the incentives to improve their performance. If states are provided with the necessary decision-making authority and resources for the operation of rural programs, they could introduce innovative compensation schemes to reward good performance, and design coherent strategies for the transfer of technology to the rural sector.

The Regional Level, Key to Implement a Territorial Approach to RD

79. **Meso-level economic coordination institutions of mixed public-private-civil society composition are required to implement a territorial approach to rural development.** The collection of municipalities, usually called “regions”, in which state governments divide their states for planning purposes generally seem of appropriate dimensions and sufficient identity to be adequate territorial areas for the purposes of a territorial approach to RD. Thus, they seem suitable for investment clustering and to implement strategic programs to promote rural economic development. The existence of strong regional economic coordination institutions is very important to that effect. Some states, for instance Michoacán, have already created regional development councils. If sufficiently strengthened with technical capabilities and provided with funds to co-finance productive programs for their rural areas, these councils could become the focal point for rural economic development in their territories.

80. **In most states, however, the coordination entities that currently exist for rural development at the regional level are the CDDRS.** These councils could potentially become excellent meso-level entities for economic coordination within a territorial approach to rural development.²²² Unfortunately, at present, CDDRS are probably the weakest element in the RD system in Mexico, for more priority has been given to municipal than to district RD councils.

²²² The area of operation of CDDRS roughly corresponds to that of state government “regions” in most states. This correspondence, however, is not perfect and would need to be adjusted. Most state governments have tried over the last years, with varying resolve and uneven success, to establish unique regionalization systems, by convincing federal *secretarios* to divide the states for their own operational purposes in the same geographic regions as state governments. Advances in this respect are encouraging; however, much remains to be done. Achieving a unique regionalization system is an important step towards promoting strong regional development and rural territorial development as part of it. Also important is to harmonize the

81. **Strengthening the institutional capacity of the CDDRS would be a main part of the rural decentralization agenda.** CDDRS could combine participatory principles with sound technical and market criteria to design long-term development strategies for their territories. These strategies would be based on the potential offered by territorial assets and the identification of the main development axes around which investment support should cluster. CDDRS could also design and set in motion regional programs for the practical implementation of the long term strategy, in line with the development axes selected. The identification of priorities and the allocation of investment support by lower RD levels, basically the municipal councils, would be carried out within the framework of the long-term territorial strategy and the development programs established by CDDRS.

82. **CDDRS could also have the function of linking up territorial programs with production chains.** They could, for instance, promote the development of regional production chains in their territories and their insertion in larger chains. Similarly, CDDRS could design and help set in motion large projects which could become triggers of rural regional development. CDDRS would receive from state governments a good part of the newly decentralized resources so that they could cofinance, using competitive criteria, the financial investments included in their regional programs. Thus, CDDRS would be the main operational vehicle of the RD strategies and policies of the states.

83. **To be able to carry out these activities, CDDRS would need to have a sufficient cadre of professional staff with good technical credentials.** The participation of civil society would also need to be strengthened so that CDDRS become effective platforms for *concertación* and economic governance of their territories. Finally, state governments should transfer to CDDRS the funds required for their effective functioning, as well as the resources needed to cofinance the productive investments included in the regional programs.

The Municipal Level

84. **A number of institutional features of municipal governments in Mexico prevent them from effectively serving as the territorial coordinators of RD policies.**²²³ CMDRS tend to atomize RD resources to satisfy the demands from local producers, without creating enduring productive effects. This shortcoming is partly due to the absence of adequate mechanisms for resource prioritization at the municipal level, and to a marked bias among municipal governments in favor of urban development and service investments.²²⁴ Also, CMDRS tend to be undermined by “localism” (Cossio, 2006), and the prevailing institutional arrangements preclude the creation of policy partnerships between nearby municipalities, which would be required for RD projects to have a large-scale territorial effect. In consequence, it is preferable

overlapping system of development councils created by the *Ley de Planificación* (which created the development planning councils, COPLADES), LDRS (which created the rural development councils), and *Ley de Desarrollo Social* (which created the social development councils).

²²³ See details in World Bank, 2006.

²²⁴ In a recent study, Moreno (2005) provides empirical evidence suggesting that the investment decisions of municipal governments in Mexico are not targeted to localities with higher poverty rates, and that the allocation of municipal budgets responds, in part, to electoral motivations. See Moreno, Carlos: "Decentralization, Electoral Competition, and Local Government Performance in Mexico". Ph.D. Dissertation, LBJ School of Public Affairs, The University of Texas at Austin, 2005.

that the economic coordination of RD strategies be under the responsibility of entities with broader jurisdiction, such as the CDDRS.

85. **The above does not imply that the municipal level should not participate in the formulation and implementation of RD policies.** First of all, CMDRS are important members of the CDDRS. Second, our evidence indicates that CMDRS are becoming a relevant site for policy dialogue and program dissemination, where local producers can participate expressing their needs and priorities. CMDRS would continue to serve as a forum for social participation and discussion, and also as an arena to prioritize the allocation of resources, but within the framework of the long-term territorial strategy and the regional programs established by CDDRS and under their guidelines. It is important, however, to work towards ensuring that (i) more decision-making power within CMDRS is in the hands of local producers rather than municipal presidents or technical coordinators, (ii) they are better informed of programs and program opportunities, and (iii) the representation system is improved to ensure more continuity of representatives, and manageable numbers.

The Case for RD Decentralization: Final Remarks

86. **The above proposal is clearly a big departure from the current system, and implementing it would require considerable political courage.** We believe, however, that it does not require constitutional or other major legal changes, although some adjustments to LDRS could be needed. We also believe that the progress made in decentralization and transparency over the last years provides a good basis for such a drastic reform.

87. **There are several grounds on which we can argue the merits of a decentralization proposal of RD programs like the one outlined above.** Efficiency considerations are important. We believe that our proposal would improve allocative efficiency in the use of public funds in RD in Mexico because by letting state governments design and carry out their own programs, program design and implementation would be brought closer to the needs and preferences of beneficiaries, which vary considerably across states. Gains would also be made in supply or x-efficiency because the current overlapping and lack of coordination of federal programs could be overcome by letting state governments substitute the multiplicity of federal RD programs by a reduced number of state programs designed to implement a concrete RD strategy for the state. Finally, dynamic efficiency would also be improved because state programs would be at the service of a long-term RD strategy for the state, and because investment clustering and economic coordination would be enhanced through a territorial approach to RD based on strengthened CDDRS.

88. **Other theoretical arguments have been advanced in favor of decentralization** (for instance Tanzi, 1995). Important among them are that (1) “accountability brings responsibility”, and (2) decentralization allows experimentation and hence the introduction and dissemination of improvements in the supply of development services. These arguments apply well to our decentralization proposal. As indicated by Joumard (2005), experimentation by the states and the dissemination of good practices is already taking place in Mexico in areas where decentralization has advanced.

89. **Redistribution and macroeconomic stability are matters that may be affected by decentralization** (Prud'homme, 1994). In the present case, redistribution could be enhanced by our proposal of distributing RD funds to the states using an agreed formula if this formula is progressive and demand based, duly considering state needs. The current geographic targeting of *Alianza's* decentralized funds is regressive. The type of decentralization here proposed could reverse this. With respect to macroeconomic stability, there is no reason to believe that it would be affected by our proposal, because we advocate distributing funds to the states that are currently spent by federal *secretarías*, without increase of total public expenditure.

90. **Other concerns often raised about decentralization are the lack of sufficient local level capabilities to provide adequate development services, and the existence of externalities and spillovers in public expenditure.** With respect to the former, the lack of sufficient capabilities to design and implement RD programs is not an important issue with state government administrations in Mexico. It is instead an issue with municipal administrations, but our proposal is to focus the RD mandate in the states not in the municipal governments. As indicated above, the municipal level would have a role in the decentralized system proposed through the CMDDS, but under the guidance and within the regional programs established by CDDRS. District Councils would play a crucial role in internalizing the externalities and spillovers that may exist at the municipal level, and in the clustering of investments around the most promising development axes identified in the regions.

91. **Local taxing and spending balance.** It is true that by transferring additional funds to state governments the present proposals would increase the current imbalance between the taxing capacities of state governments and their spending levels (Joumard, 2005). This problem exists in any attempt at further decentralizing any economic or service sector in Mexico as long as there is not a reform to further decentralize the fiscal system itself. Although more equilibrium between the financial autonomy of the states and their fiscal responsibilities would certainly be welcome, we believe that this should not be a deterrent to carry out more expenditure decentralization but an incentive to decentralize taxation.

92. **We can anticipate several problems and risks in the implementation of our proposal.** The first problem is to agree on the amount of resources to be transferred to the states, and on the distribution formula to be used. The second problem is the political difficulty of stripping federal *secretarías* of a good part of their resources, program formulation responsibilities and regulatory powers over these programs. We believe that a new government is better placed to overcome this difficulty, because if a decentralization reform of the type outlined above were included from the beginning in the new government's program, the new secretaries would come into office knowing that their powers would be trimmed. Finally, in any decentralization reform there is always the risk of the local elite capturing a good part of the benefits, with the central authorities being left with few instruments to prevent this from taking place. This would largely depend on the behavior of state governments, because, on the one hand, they could be part of the problem, but, on the other, they are in a much better position than the national government to prevent elite capture. Sub-national governments cannot be considered a priori better or worst intentioned than central governments. All we know is that they are closer to citizens and, hence, on fundamentals, if we believe in the subsidiary principle, we are bound to favor taking the risk.

Land Policy Issues

*Land Policy Reforms and their Effects*²²⁵

93. **Major land policy reforms were carried out in the 1990s.** The key reforms of land rights are discussed in the attached box. The reforms were exclusively oriented to the communal forms of ownership or the "social sector" – *éjidos* and *comunidades*-- and were of great importance given the size of this sector, which covers more than half of the country's agricultural land and nearly four million landed families²²⁶. With important exceptions, *éjidos* are land poor (in quantity and quality) and have low farm technology, widespread poverty and an aging population. Rural poverty in Mexico is mostly located in the social sector. Reforms were expected to (1) bring benefits to *ejidatarios* and other dwellers of *éjidos* and *comunidades* and thus to the rural poor, and (2) to improve efficiency in land markets and facilitate investments on the land. We briefly assess below these expected impacts.

94. **Legal and administrative reforms in the social sector have brought benefits to large portions of the rural poor.** In particular, they: (1) gave more security of tenure and freedom to decide on their lands to the majority of the small farming population, with *certificados de posesión* being issued by PROCEDE to more than 3 million households; (2) gave security of tenure to close to one million land occupants as well (*posesionarios*); (3) improved conflict resolution and social peace in rural areas; and (4) improved the functioning of land markets in the social sector (World Bank, 2001a). Also, the application of PROCEDE was accompanied in many *éjidos* by the division of collective lands or parts of them and their distribution to *ejidatarios* as individual plots. It has been shown (see Muñoz-Piña, de Janvry and Sadoulet, 2003) that this allocation was equalizing, since it benefited proportionally more *ejidatarios* with smaller holdings as well as those of indigenous ethnic origin. Division of collective lands was also used to allocate agricultural plots to landless *éjido* residents and include them as *ejidatarios*.²²⁷

Box 2: Land Policy Reform in the 1990s

The reform of land rights in 1992 centered on the change of article 27 of the Constitution and the land law that followed. The main changes were: (1) the agrarian reform was formally closed, thus ending the possibility of land being expropriated for this purpose; (2) land rights in the social sector (*éjidos* and *comunidades*) were improved and made more transparent; (3) a judiciary system of specialized courts (*tribunales agrarios*) was set up to rule on land disputes in the social sector (previously dealt with by government); and (4) a sort of *ombudsman* institution was created, the *Procuraduría Agraria*, to defend the rights and serve the legal needs of *ejidatarios*, *comuneros* and other small farmers. Other than this, a land titling and registration program of social sector lands, PROCEDE, was launched and has been very active, and a national registry for these lands, the *Registro Nacional Agrario*, was created.

²²⁵ This section is partly based on World Bank (2005) Chapter 5.

²²⁶ According to the 2001 *Ejido* Census, there were 30,305 *núcleos agrarios* of which 27,786 *éjidos* and 2,519 *comunidades*, with an average of 3,467 hectare and 127.8 members with full rights, making a total of 105,067,435 hectare and 3,872,979 landed members. In addition, there were 957,638 occupants who were not *ejidatarios* but whose land rights were recognized by PROCEDE. According to the 1991 agricultural census, *éjidos* had 51% of the country's agricultural land. The labor force in the *éjido* sector was 2.3 times that of the private sector, and *ejidatarios* had around 1/3 of the surface per producer and 1/3 of the heads of cattle per producer of the private sector.

²²⁷ There is a large literature on the nature and effects of the *éjido* reforms. An interesting reading is the collection of monographic studies edited by Cornelius and Myhre (1998).

There are three types of land rights in the *éjido*: (1) homestead plots with full, unrestricted ownership rights; (2) farming plots individually owned by the *ejidatarios*, which have some restrictions; and (3) collective lands (usually forest and grazing areas) for communal use, without separate rights. Farming plots (average 5 ha per *ejidatario*) can be rented in and out without restriction, freely sold to other *ejidatarios*, transmitted as inheritance, and used to constitute joint ventures with private capital. Farming plots, however, have three legal restrictions: (i) they cannot be sold to non-*ejidatarios* without permission from the *éjido*'s governing body (the members' assembly), (ii) they cannot be parceled up (upon inheritance or otherwise), and (iii) they cannot exceed certain size limits. *Ejid*os can change to a full private ownership system if 2/3 of members so decides. So far, less than 1% of *éjid*os, mostly periurban ones, have used this legal provision.

Land policy issues are complicated by the fact that the *éjido* (like the *comunidad*) is both a land tenure system and a form of social organization. As a land tenure system it consists of a large tract of land with a collective title issued to a community of beneficiaries who practice individual farming and have collective use of forest and grazing lands. As a social organization it is a system of village governance and constitutes a form of social capital in rural areas. Institutionally, the *éjido* is the historical product of the Mexican Revolution and the *reparto agrario* (land distribution), making its reform a politically complex issue.

Source: World Bank (2005) Chapter 5. Based on De Janvry *et al.*, 1998, World Bank 1999 and 2001, Höllinger, 2004.

95. **The impact, however, of the reforms on land productivity and farmers' incomes in the social sector seems to have been small.** There is no systematic data on this, but some evidence is provided in World Bank (2005) based on ENHRUM—a rural survey undertaken by the *Colegio de México* in 2002. There are three main reasons for the lack of impact of reforms on employment and income opportunities. First, property right changes do not create *per se* economic development, although they may open the way to it; the reforms were surrounded of excessive optimism in this respect. Second, little was done to accompany the reforms with the complementary investments and support systems to *éjido* and community farmers required to improve land productivity and farm incomes. Finally, under existing business circumstances in agriculture, private capital was generally not interested in investing in the social sector with the exception of particularly attractive peri-urban or irrigated *éjid*os.

96. **Assessing the impact on land markets is not a trivial task.** No firm data exist on the operation of land markets in Mexico because of the lack of land market surveys. Circumstantial evidence points to the following results of the reforms:

- Very few *éjid*os (less than 1 percent) have decided to privatize (i.e. vote in favor of *dominio pleno*). The large majority of those privatizing are peri-urban *éjid*os.
- There seems to be little private demand for *éjido* rain fed lands either for renting or for buying. There seems to be, however, a fair amount of different type of transactions of rain fed land within the *éjid*os, most of which are informal.
- In rich agricultural regions with irrigated lands, there is strong private demand for *éjido* lands. Buying, however, seems to be small, but renting is extremely widespread. Thus, in many irrigated *éjid*os of the northern states the majority of lands seem to be rented. Most rental contracts are either annual or for one cropping season.
- Joint ventures and share arrangements between *ejidatarios* and private parties do not seem to be widespread.
- Commercial farmers complain that the constitutional ceiling to the ownership of farm land (100 hectare of irrigated lands or their equivalents in rain fed cropping land and grazing land) limit their ability to invest in agriculture and achieve economies of scale.

They seem to be able to get around this, however, either by renting (there is no limit to land renting) or by spreading farm ownership among family members.

- Land markets seem to operate less in communities than in *éjidos*. This is probably because of cultural factors and because many communities have chosen not to take part in PROCEDE.

97. **In summary, it would seem that in those areas where private capital is interested in investing in the land for agriculture or urban development purposes it is able to do so, but the land tenure system imposes transaction costs.** It is not possible to know how high these costs are with the information now available. The limited amount of purchases of *éjido* lands and the annual or seasonal nature of rental contracts must be considered unfriendly to private investment in agricultural lands and to good soil management.

Present Situation and Challenges for Land Policy

98. **New major changes in land legislation do not seem politically feasible,** and, furthermore, it is questionable that major reforms of the Mexican land tenure system are a priority at this stage. The reason is that although privatization reforms could reduce or eliminate transaction costs for private capital to access land, they would threaten the social fabric of much of rural society, which still rests on the community and *éjido* governance system. In weak and impoverished rural economies like those of many Mexican regions, the social protection and equity functions of social property may still have a role to play for a number of years.

99. **There is one aspect, however, where the present legal framework could be modified to good advantage without much difficulty—the fractioning of *éjido* parcels.** The legal norm preventing the fractioning of the land titled to *ejidatarios* obstructs land sales and forces *ejidatarios* to pass the land to one heir only, generating inefficiency and welfare losses. The rationale behind the norm is to maintain farm size and if possible expand it through the consolidation of holdings in order to promote a class of viable farms within the *éjidos*. Small farmers, however, have a multisectoral economy. The important thing for them is not viable farms but viable multifunctional family enterprises, of which part-time farming can be an important component. Relatively small farms can play crucial complementary roles in the economy of rural families. Part-time farming has proven to be efficient (in terms of both product per hectare and family welfare) in many parts of Europe. Finan, Sadoulet and de Janvry (2003) have shown the importance of the welfare effect of even small plots of land in Mexico, an effect very much enhanced by complementary assets and good location.

100. **The three central challenges faced by land policy today can be addressed without need of major changes in land tenure legislation.** These challenges are (1) enhancing and rationalizing the system of land administration; (2) promoting efficient and equitable transactions of land for urban expansion; and (3) encouraging good management of the natural resources owned by *éjidos* and *comunidades*.

101. **At present, land administration in México is divided among three levels.** At the federal level the *Registro Agrario Nacional* (RAN), under the responsibility of the *Secretaría de Reforma Agraria*, keeps registries of all lands in the social sector. Private lands --urban and rural-- are registered in registry offices run by the states. These registries are of very different

quality, and use different registration methods and technical platforms. There is hence no integrated registry system of private lands. Finally, municipalities run their own cadastral offices of rural and urban lands, mostly for local property taxation purposes. This cumbersome and scarcely transparent system is in need of overhauling in order to increase tenure security and facilitate land transactions. The best way would be to (1) create a National Rural Cadastre where all lands --social, private, public, and protected areas-- would be registered, (2) simultaneously, in coordination with municipal and state authorities, reform the legal framework and strengthen the technological platform to create a unique Property Public Registry integrated with the National Rural Cadastre (linking geographic and legal information at the parcel level), (3) initiate a land regularization program for private lands in areas where land tenure rights are not sufficiently well established, and (4) maintain and update PROCEDE processes and records.

102. **Some 70 percent of peri-urban lands belong to the social sector.** In view of rapid urban expansion in Mexico, these lands are in great demand and are needed for sound urban development. Peri-urban *éjido* lands have been coming into the market but in most cases *ejidatarios* have not been getting a good deal out of the transactions, since most of the benefits accrue to developers or intermediaries. One way to address this issue and increase transparency would be to establish a land price monitoring system that would enable *ejidatarios* and *comuneros* in peri-urban *éjidos* to access consistent and reliable information on land prices and their change over time. In addition, fast-tracking of *dominio pleno* in peri-urban areas could be explored, so as to facilitate rational urban development. A third mechanism would be to promote formal associations between developers and *ejidatarios* or *comuneros*. Such associations are permitted by the Agrarian law but are not common in practice.

103. **Some 60 percent of coastal lands, two thirds of the nation's forest and biological reserves, and 80 percent of natural pasture lands are collective lands of *éjidos* or communities.** Good management of these lands is essential for sustainable development. In particular, community and *éjido* forestry is key in Mexico's poverty alleviation strategy. Collective action problems often preclude utilization of the limited opportunities available. Many *éjidos* and *comunidades* lack the internal or business organization or management tools to take advantage of the value of their forestry and other collectively owned natural resources. This implies a need for capacity building in managerial issues, as well as the development of systems to manage commonly owned resources. In addition, the underlying land tenure situation and the incentives it creates for different land uses should be taken into account. Uncertainty over property rights and related conflicts has been a strong deterrent to the adoption of long-term investments and sustainable practices for the use of land. Addressing security of land tenure will be key for managing land sustainably.

Young and Old Population and Economic Development in the Social Sector

104. **There is a distinct ageing of the farming population in the *éjido* sector.** According to data from PROCEDE, the average age of land right holders in regularized *éjidos* is 54 years, 60 percent are older than 50, and 29 percent are older than 65. Ageing reduces efficiency in land use since the elder tend to make a more extensive use of the land and are generally less efficient farmers. This has been observed in field studies (Eduardo, Le Moing and González, 2004).

105. **The situation of young residents of the *éjidos*, who are more educated than their parents but have no access to land and employment sources, is worrying.** Sons and daughters of *ejidatarios* cannot easily find employment in the *éjido* and hence many are forced to migrate. As residents of the *éjido* but not *ejidatarios*, these young workers are a discriminated group without voice or power in *éjido* decision-making. The market is failing to transfer *éjido* farm land from low productivity users (mostly the elder) to potentially high productivity users (the younger) in a satisfactory manner, and young *éjido* workers suffer from it.

106. **Lack of income and employment sources for young landless farmers in the social sector is being addressed through a new and promising program.** The *Secretaría de la Reforma Agraria* (SRA) has started a pilot program to promote the creation of income and employment for this young population by means of access to land through buying and renting and to investment capital, technical assistance and training to start new productive enterprises. This *Fondo de Tierras y Jóvenes Emprendedores Rurales* (FTJER) program is a welcome response to the above situation particularly in view of the importance that young workers may have in the taking off of the rural economy of the social sector. The World Bank is supporting it with an investment loan started in February 2006.

107. **FTJER could be a major program for rural areas.** The experience acquired in the two years of operation of FTJER is very valuable. It shows that (1) with appropriate policies and implementation instruments it is in fact possible to generate new sources of income and employment for young social sector workers, (2) young workers are very interested in the program, and (3) many of them are prepared to take up the challenge of becoming local small *empresarios rurales* instead of migrating. If properly tested, calibrated, and scaled up at the right pace, FTJER could become a flagship program for production-oriented rural development in Mexico. This is because of its potential impact on migration, rural incomes, poverty and inequality, agricultural competitiveness, gender equality, and the productive use of the superior human capital of the young rural generation. FTJER could eventually become a kind of production-oriented counterpart of *Oportunidades*. The lesson of *Oportunidades* is crucial here; it has become the major success that it is today largely because it started slow, underwent successive adjustment, and was scaled up steadily but with prudence.

108. **But to be successful the program needs major adjustments, without which it should not be scaled up.** The adjustments proposed are the result of the operational experience. They are summarized below.

- Return FTJER to its condition of a pilot program to be operated in a few states only, as originally envisaged, and then scale it up when methodologies are tested and conditions are ripe.
- Reassess the training and technical assistance needs of the new potential entrepreneurs, and reorganize the training, technical assistance and investment evaluation systems currently used.
- Reassess the amounts being allocated as loans and grants and the conditions of the loans, and include systems for the provision of working capital loans.
- Reassess the system for the valuation of the purchase and rental price of lands, and align incentives so that these prices are not inflated in the current situation of highly personalized land markets.

- Clearly separate mechanisms for access to land and for access to productive investments. Do not make access to investment loans/grants conditional on acquiring or renting land. Give instead more flexibility to the access to land part of the program accepting, for example, customary modes of tenure of indigenous communities or partnerships between *ejidatarios* and landless young entrepreneur.
- Separate the access to land by young farmers from the sale or renting out of land by old farmers, leaving this as one of the possibilities.
- Carry out a financial engineering to widen the operation of the program in order to include other financial intermediaries like *Financiera Rural*, *FIRA* and private banks.
- Revalue the role of the field operators (*los promotores*) of the program, train and support them, provide them with the right incentives, and empower them to take on-the-spot decisions.
- Decentralize more the program giving more participation to state institutions and governments.
- Promote the organization of economic and corporate networks of the young rural entrepreneurs beneficiary of the program.
- Strengthen the capacity of the *Secretaría de Reforma Agraria* and FIFONAFE to operate the program.

Need of a land market observatory

109. **There is little information on the functioning of private and social land markets.** This affects the design and implementation of land policies and rural development programs. It is therefore recommended to carry out a comprehensive land market study and create a land price database. The creation of a land market observatory would help preparing and monitoring sustainable rural and urban planning and development programs.

Synthesis of Measures to Implement the Decentralization Proposal of Productive RD Programs

Short Term: 1st year (1)			
Federal Level	State Level	Regional Level	Municipal Level
<ol style="list-style-type: none"> 1. Administrative decentralization (transfer to states of staff, assets, etc. of RD programs of SAGARPA and other <i>secretarías</i>) 2. Identification of funds to be transferred and federal RD programs to phase out 3. Agreeing with the status the formula to transfer funds 4. Design of the federal M&E system 	<ol style="list-style-type: none"> 1. Prepare RD strategy and programs of the state 2. Strengthen CEDRS and coordination and harmonization of funds of federal programs in the state 3. Strengthen CDDRS with technical staff and operation funds 4. Design of the M&E system of the state RUD agenda 	<ol style="list-style-type: none"> 1. Prepare regional RD strategies and programs by CDDRS 2. Promote coordination and funding harmonization of federal programs in the region through the CDDRS 3. Promote more participation of private sector and civil society of the region in CDDRS 	<ol style="list-style-type: none"> 1. Improve the representation system of CMDRS 2. Improve information to CMDRS of the supply of RD programs 3. Strengthen decision making of producers in CMDRS
Intermediate Term: 2nd year			
Federal Level	State Level	Regional Level	Municipal Level
<ol style="list-style-type: none"> 1. Continue the administrative decentralization 2. Phase out RD productive federal programs and transfer funds to the status with the agreed formula 3. Start the federal M&E system 	<ol style="list-style-type: none"> 1. Start the state RD programs 2. Transfer to CDDRS operation funds and funds to cofinance regional program investments 3. Start the state's system of M&E of the state RD agenda, including the supervision of CDDRS 	<ol style="list-style-type: none"> 1. Start territorial RD programs in the region through the CDDRS 2. Select investments to be cofinanced by CDDRS through competitive processes 3. Cofinance investments selected and monitor their performance and that of the regional programs. 	<ol style="list-style-type: none"> 1. Disseminate in CMDRS the regional programs of CDDRS and their opportunities for local producers 2. CMDRS contribute to the implementation of the regional programs selecting beneficiaries and prioritizing local investments 3. Continue improving representation, information and producers' participation in CMDRS
Medium Term: Years 3 to 5			
Federal Level	State Level	Regional Level	Municipal Level
<ol style="list-style-type: none"> 1. Finalize administrative decentralization 2. Annually transfer funds to the status according to the agreed formula 3. Implement the federal M&E system 	<ol style="list-style-type: none"> 1. Operate the state's RD programs 2. Annually transfer to CDDRS operation funds and funds to cofinance regional program investments 3. Operate the state's system of M&E of the state RD agenda, including the supervision of CDDRS 4. Periodically adjust the state's RD strategy and programs 	<ol style="list-style-type: none"> 1. Operate the regional RD programs through the CDDRS 2. Annually select investments to be cofinanced by CDDRS through competitive processes 3. Annually cofinance investments selected and monitor their performance and that of the regional programs 4. Periodically adjust the RD strategy and programs of the region 	<ol style="list-style-type: none"> 1. Disseminate in CMDRS the regional programs of CDDRS and their opportunities for local producers 2. CMDRS contribute to the implementation of the regional programs selecting beneficiaries and prioritizing local investments 3. Continue improving representation, information and producers' participation in CMDRS

(1) Decentralization would start the second year. During the first year decentralization would be prepared at all levels. Federal programs would continue during this year but their coordination and the harmonization of funding would be strengthened in the states (through the CEDRS) and the regions (through the CDDRS)

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Chapter 9: WATER RESOURCES— AVERTING A WATER CRISIS IN MEXICO

Douglas Olson and Gustavo Saltiel

Mexico has critical and urgent water related problems including the overexploitation and contamination of surface water and groundwater resources in the regions where most of the people reside and where the great majority of the GDP is generated. The unsustainable use of water in these water scarce areas is a constraint to economic growth and competitiveness. It also disproportionately affects access and quality of services to the poor and degrades the environment. Irrigation is the largest user of water resources, accounting for 77 percent of withdrawals

Mexico has made important strides in water rights administration, water resources monitoring and assessment, water resources planning and basin level institution building that provide a good foundation for moving towards sustainable water resources management. Mexico has also made steady progress in increasing water and sanitation service coverage over recent decades, reaching levels among the highest in Latin America.

There is a need to further decentralize and deconcentrate water resources management and planning as well as financial management to the river basin level with the participation of stakeholders in accordance with the 2004 modification to the National Water Law. The basin level is key because it is where tradeoffs and priorities can be evaluated within the context of available water and financial resources. In water and sanitation services, the main challenges are to reduce important gaps in access, notably in poor, rural, and indigenous communities, increase wastewater treatment coverage, and improve service quality and operating efficiency. In water scarce areas, water usage in irrigated agriculture needs to be reduced to sustain the environment and to ensure water availability to meet social needs and economic growth.

Introduction

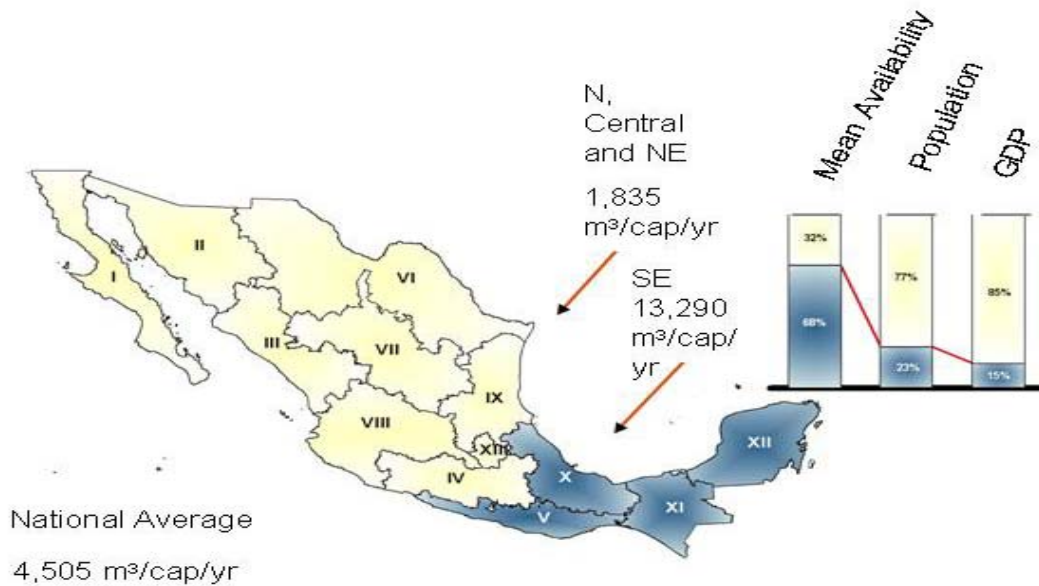
1. **Water issues are both very complex and very important in Mexico, because they sit at the conjunction of economic development, public finance, infrastructure investment, environmental sustainability, and social justice.** The decisions about water management and investment actions have a lasting physical impact on what happens with water, as well as major social impacts. The scarcity of water in many parts of the country means that sometimes more water for one sector results in less water (and a different development path) in another sector and for the environment. The national patrimony relating to the ecosystem and groundwater often ends up last in line—as everyone generally agrees on their importance but objects to having his allocation of water or fiscal subsidy reduced or to

paying for wastewater treatment. Finally, making water and water services available equitably to households is a key element in the social justice to which Mexicans aspire.

I. Water Resource Management: the Status of Water in Mexico

2. Water resources are over-exploited in the northern and central parts of the country, where about 77 percent of the population lives and 85 percent of the GDP is generated. Water abundance and income levels correlate inversely with richer northern and central regions having low water availability and poor southern regions having abundant water resources. **There is therefore a double rationale for giving priority to developing and supporting water intensive production activities in the south.**

Figure 1: Map of Water Availability, Comparison to Location of Population and GDP

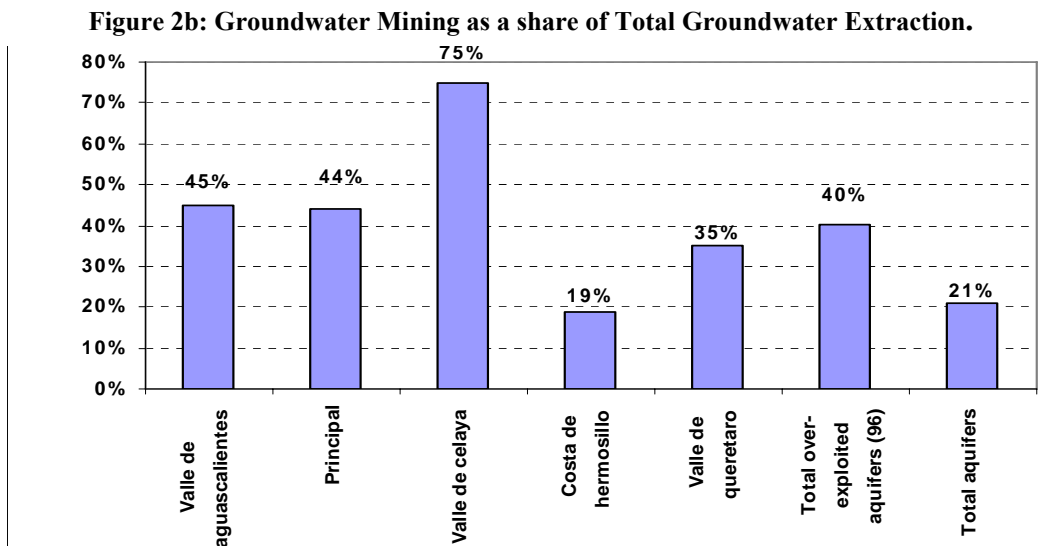
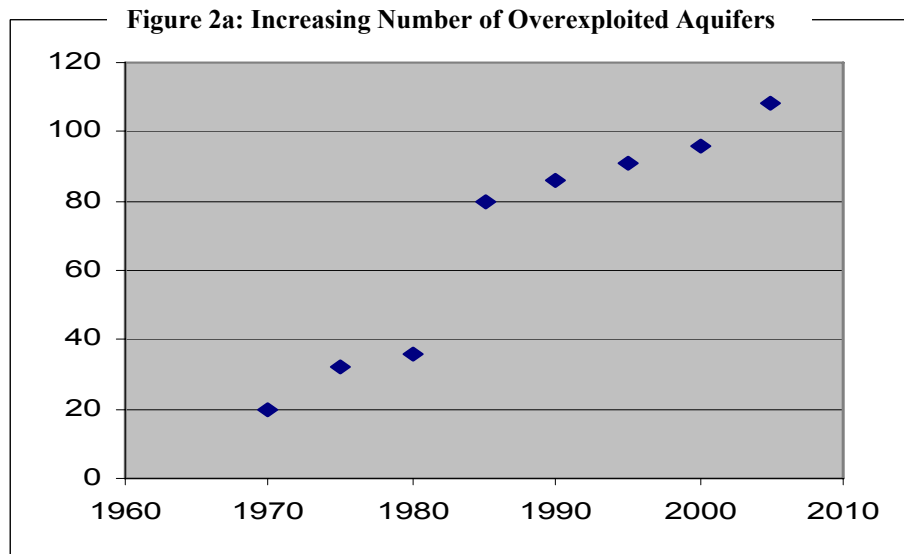


Source: CONAGUA, PNH 2001-2006.

3. **Surface waters are over-exploited²²⁸ when there is not enough water to meet environmental needs (lakes, wetlands, in-stream flows, coastal zone needs), e.g. Lake Chapala. However, the over-exploitation problem is most alarming in the case of groundwater.** The number of over-exploited aquifers has increased by 5 times since the 1970's, reaching 16 percent of all aquifers in 2001. Groundwater mining is estimated at about 6 Bm³/year, or 21 percent of total groundwater withdrawal (2001). When groundwater is overexploited, the use of this water source is unsustainable, because the portion that is being mined is not replenished. The serious negative effects of groundwater overexploitation include:

²²⁸ Overexploitation is defined as physical extraction rates greater than replenishment rates.

- depletion of the resource;
- higher cost of water production (i.e. higher pumping cost with the lowering of the water table);
- land subsidence that is extremely costly in urban areas because of damage to infrastructure;
- deterioration of water quality (i.e. salt water intrusion in coastal aquifers); and
- decline of surface water flows because of reductions in groundwater out-drainage (spring flows) to rivers and streams.



Source: CONAGUA

4. **Over-exploitation of water resources is due to the inefficient use of water in a context of water scarcity.** Irrigated agriculture is by far the largest water user in Mexico accounting for 77 percent of all water withdrawals. Irrigation is mainly concentrated in water scarce areas in the northern and central parts of the country and is principally used for the production of low-value crops. Groundwater use for irrigation has been increasing over the past 15 years and is mainly responsible for the aquifer over-exploitation problems.

5. **Water quality is also deteriorating (94 percent of water bodies in Mexico are at least somewhat polluted), mainly due to:**

- inadequate wastewater treatment (only 35 percent of municipal and 15 percent of industrial wastewater is treated);
- diffuse pollution mainly from agriculture and livestock production;
- water resources over-exploitation reducing dilution capacity, and resulting in salt water intrusion in 17 aquifers;

Why is this important now?

6. **Groundwater overexploitation threatens the sustainability of Mexico's economic and social development.** Seventy five percent of the population depends on groundwater for potable water supply, including almost 100 percent of rural inhabitants. Most industries and most of the high value crops produced for export, which provide the majority of the dynamism in crop production, rely on unsustainable groundwater use. The increasing cost of groundwater extraction and the lack of guarantee of water availability for the industry and service sectors is increasingly becoming a constraint to economic development in the northern and central parts of the country.

7. **Water quality deterioration has serious negative impacts on people's health, fisheries and the environment.** Tourism is a significant part of the Mexican economy, and it is highly dependent upon good water quality and a pristine environment. The use of poor quality water in irrigation has an important negative effect on crop yields, and ultimately, on consumers' health.

8. **Although the National Water Commission (*Comisión Nacional de Agua – CONAGUA*) has made some progress towards decentralization, it is still highly centralized and manages a number of sectoral programs in water supply and sanitation, in irrigation and in water resources management through central departments.** This has resulted in large investments but inadequate water resources management with continuing deterioration of the water resources. International experience has shown that integrated water resources management and planning works best at the level of the river basin or aquifer. The basin or aquifer is the most appropriate unit for water resources planning and management because all water uses (including the environment) share the same limited water resources within the basin or aquifer. It is therefore within the context of river basin or aquifer level planning that the water use and financial trade offs need to be evaluated and prioritized with the participation of all stakeholders.

9. In March 2006 Mexico hosted the Fourth World Water Forum that brought together people interested in water resources management, development, and use. A wide gamut of topics were discussed and commitments made to focus more attention and resources on dealing with critical water issues all over the world. **One issue that was given high attention was the importance of continuing efforts to meet the Millennium Development Goals for improving coverage in water supply and sanitation at reasonable costs for water users, with emphasis on the poor.**

Dimensions of Water Needs

10. **Demands for water and water service delivery come from three areas: households, productive activity, and the environment**—each with its distinct rationale and challenges in the Mexican context.

- **Household needs for water follow an equity rationale—access for everyone.** Mexico has done well in getting at least minimal access for almost everyone, but the quality of service, especially to the poor, is usually well below the OECD average, and the quality of delivered water is often not in compliance with the Mexican drinking water standards. In many cases, the poor end up paying more than the non-poor for small volumes of water; beyond this, only some cities in Mexico (such as Monterrey, Tijuana and Leon) have achieved full cost recovery, but most have not.
- **The demand for water for productive activity and economic development follows an efficiency rationale.** An ideal system would distribute water to equalize its marginal economic value across productive activities, which would also have approximate maximization of job creation. In practice, low-value uses of water take a lot, even in water scarce areas, while water is expensive or rationed to other uses with high value and high employment per unit of water. Within industry and commerce, the fees and tariffs are high enough to move water allocation toward this goal but, looking economy-wide and especially with respect to agriculture, where consumption is subsidized and tariffs are very low, Mexico is far from the efficiency frontier. Agriculture should and always will get substantial amounts of water, but the heavy usage in low-value crops in water scarce areas is inefficient, given the alternate needs. Currently, the only moves toward rectifying the inter-sectoral imbalances are in the marketing of water rights in scarce areas; so far this is only at a small margin of the water economy.
- **Environmental demands for water are based on protecting Mexico’s national patrimony of healthy and diverse ecosystems, and groundwater reservoirs.** But the ecosystem does not pay a tariff or receive a defined allocation; it gets the water left behind by households and productive sectors and their return flows of water after use. The Mexican water law does include the environment as a water user, but there is little practical experience in this regard, and public policy has only just begun to address this issue directly.

What to do about it?

⇒ *Implement the water law to improve water use efficiency and reduce water pollution, by deconcentrating and decentralizing water resources management*

12. **The basic philosophy underpinning the 2004 amended National Water Law (NWL) is to transfer operational and executive responsibilities from centralized CONAGUA departments to deconcentrated and decentralized entities.** Eventually, CONAGUA's central-level activities would be limited to the administration of the NWL and to normative and regulatory activities. However, moving forward with the deconcentration and decentralization process will require a significant change in the institutional arrangements, as well as improvement of the sector information system and development of the sector's human resources capacity.

13. **The 2004 amended NWL mandates a restructuring of key functions of CONAGUA through the transfer of responsibilities from the central level to subnational entities: the Basin Agencies (*organismos de cuenca - BA*) and Basin Councils (*consejos de cuenca - BC*) that are expected to play an increasing role in the sector.** The BAs will be developed from the 13 existing Regional Offices of CONAGUA and will have much greater responsibility. Each BA will be associated with one or more BC, which will bring into play the participation of other federal entities, the states and municipalities, the water users and other stakeholders. How this restructuring will be carried out and how the BAs, BCs and other stakeholders will operate and interact remains to be specified in regulations. Major institutional and program changes will be required and these will take time. A pilot approach that begins in 1 or 2 basins to design and test the new approaches would be recommendable.

14. In order to improve water resources planning and management in the spirit of the 2004 amended Water Law, technical and financial planning, and annual budgeting and programming need to start at the river basin or aquifer level under the leadership of the BAs and with the participation of stakeholders through the BCs. The traditional approach to water resources planning is to estimate future water demands based on historical trends and then to plan investments to increase water supply to meet these future demands. In water scarce areas where water resources are presently being overexploited, increasing water supply may not be possible within the basin and it may not be feasible to import water from other basins. In northern and central Mexico water resources are scarce nearly everywhere and importing water can be costly and very controversial. In these areas, water resources planning needs to focus on better utilization of available water to sustain the environment and to meet high priority social and economic needs. This will normally mean that water utilization in low-value agricultural uses will need to be reduced; in some cases major reductions will be required. **Integrated Water Resources Management Plans (IWRMPs) with the participation of all stakeholders need to focus on tradeoffs and priorities and should be prepared for basins and aquifers with serious water shortages and water quality problems.** The IWRMPs should include:

- **A survey and analysis of the history, problems and needs in the basin or aquifer**

- **A water balance and water quality analysis and water resources models** that are utilized to: (a) evaluate the present situation including environmental aspects and overexploitation issues; (b) evaluate scenarios of actions and future conditions to support the selection of priority structural and non structural actions that will provide sufficient water for the environment and ensure water availability for high-value economic and social uses; and (c) monitor and evaluate implementation of the selected action plan.
- **A selected IWRMP including both structural and non-structural actions** that will achieve the sustainable WRM objectives confirmed through the water balance, water quality and modeling analyses and also meet economic development and social objectives. The process of arriving at the selected plan should include a prioritization of potential actions based on economic, social and environmental objectives and the selection of the optimum plan within the envelope of available financial resources
- **A financing plan that includes the sources and uses of funds and funding mechanisms** necessary to successfully implement the IWRMP. The financing plan should include the establishment of mechanisms (such as trust funds) with transparent regulations to facilitate implementation of the plans.
- **A draft regulation for the basin or aquifer** that reduces water rights to sustainable utilization levels, and an implementable program for monitoring, controlling and enforcing water rights and discharges.
- **An institutional plan for implementation of the IWRMP**
- **Acts issued by the Basin Councils, COTAS, state governments, municipal government, federal government agencies and private sector entities** adopting the IWRMP and committing to its implementation.

Eventually, the BAs in collaboration with the BCs would be responsible for:

- Planning and implementing all aspects of water resources management and investments within their areas;
- Issuing, administering and enforcing water use rights and discharge permits, and monitoring and assessing water quantity and water quality aspects in the basin or aquifer;
- Setting rates and collecting all fees including: water user fees, bulk water charges, and water pollution penalty charges;
- Financial planning and management including: sources of funds, uses of funds, and annual budgeting based on IWRMPs.

CONAGUA at the central level would be responsible for:

- Establishing policies, norms, standards;
- Approving and supervising plans and annual budgets, and consolidating them into national plans and annual budgets;
- Supervision, monitoring and evaluation of all activities at the national and basin levels.

⇒ *Improve the “user and polluter pay” principles, to (a) generate more resources to finance the IWRMPs and (b) provide further incentives to increase water use efficiency and reduce pollution*

15. There is a critical need to improve rate setting and enforcement of the water pollution discharge fee. In 2005 revenues collected for this fee were only about MxP 7.3 Million (approximately US\$ 675 million). The costs of water pollution have been estimated to be about US\$ 6 billion annually. There is clearly a great potential to increase collection and enforcement and at the same time to decrease pollution and improve water quality through better implementation and enforcement of the discharge fee.

16. The discharge fee needs to be set at a rate to be an incentive to promote investments to reduce water pollution. The discharge fee is also a huge untapped source of revenue for CONAGUA. In France, for example, most revenues of the river basin agencies come from the pollution penalty charge: in the Adour-Garonne Basin, 72 percent of the fees collected from water users and polluters come from the pollution penalty charge. The penalty charge rates should be set high enough and better enforced in order to be an effective incentive to reduce water pollution loads. As in the case of France, the revenues collected from the discharge fee could be returned to “polluters” in order to subsidize investments in wastewater treatment aimed at decreasing the pollution load into water bodies. Decrees that direct the return of revenues could be implemented.

17. Water usage can be significantly reduced and revenues from water use fees can also be significantly increased by:

- improving collection efficiency, i.e. reducing delinquency;
- introducing a small water use fee for irrigation, starting in areas where water scarcity is the highest ;
- decreasing “rebates” of water use fees for the mining, sugar and paper industries; and
- raising water use fees for industries and water utilities in water scarce areas.

18. To the extent that the pricing of water reflects its scarcity, water-intensive production will tend to shift from water-scarce areas in the northern and central parts of the country to areas with more abundant resources in the southern part of the

country, and could thus benefit the agenda of reducing regional inequality—reducing the gap between the “two worlds” within Mexico..

19. **Returning all fees to the basins where they are collected is an important policy objective.** This could lead to visible changes in water resources management, which could reduce some of the complaints (especially from industrial users) about paying high fiscal water user fees since such users will see that their fees are being used to solve their own basin’s water resource management problems.

20. **Transferring responsibility for setting fee rates and fee collection to the BAs and BCs** would also be an important step because it would allow the basin stakeholders to determine their resource requirements and set the fee rates to meet their needs as determined through the IWRM planning process. Water users should be encouraged to directly participate in proposing the plans and priorities for the basin through the BCs and they should also participate in defining the fee rates.

⇒ *Improve water rights administration, promote temporary water trading and work towards making water rights marketable*

21. There is a water rights registry in Mexico that covers 95 percent of all water users, which is an impressive accomplishment. Eventually **it could help to control water usage to sustainable levels. It could also be used to help address the water use efficiency problem, letting the market rather than government fees push up the perceived marginal value** and allowing a farmer to capture the capital value of his water allocation. A fundamental problem is that the amount of the water rights greatly exceeds sustainable levels in water scarce areas. In addition, there are still a number of errors in the records, and there is little effective enforcement.

22. However, **before there can be an adequately functioning water market, it is essential to have in place an efficient user rights administration system** with all water usage being measured and controlled and with the total water rights not exceeding sustainable allocations. If there is inadequate measurement or control, then a water user could continue to use water after having sold it. If water rights exceed sustainable levels, then the purchaser could be buying into an unsustainable situation and therefore not get a guaranteed long-term supply. If water rights are only partially being utilized, then the portion not being used may be sold. All of these scenarios currently occur in Mexico and in areas where water is presently being overexploited, such situations increase the overexploitation.

23. **In order for the water market to work it will require cleaning up records; reducing the registered water allocations to be consistent with the actual amount of water available; implementing a complete administrative system to measure and control water usage; and setting up transparent market-clearing and enforcement mechanisms.** Regulations should make sure that water rights relate to the net (consumptive) water use and not the gross water extraction. This will ensure that improvements in efficiency (such as leakage reductions) do not result in higher depletion.

⇒ *Reduce water pollution*

45. **There is a major need to undertake a series of critical actions geared at reducing water pollution.** In addition to expanding municipal wastewater treatment (see par. 37 above), the Mexican government would need to put much greater emphasis on enforcement of the water pollution discharge fee and increasing the rate, as well as providing clear incentives for promoting treatment of industrial effluents.

46. Diffuse pollution mainly from agriculture chemicals and livestock production is another major source of water quality deterioration. For this type of pollution, it is normally not possible to measure and control discharges. **There is a need to design and implement a program to review, revise and enforce norms and standards for the agriculture and livestock production processes in order to reduce and control diffuse pollution.**

II. Water Service Delivery

A. Human Consumption and Sanitation.

24. **Access to water and sanitation in Mexico has steadily increased over recent decades, reaching levels significantly beyond the average of the region and of other developing countries** (Table 1). Approximately 90 percent of the population now has a water connection either in the house or nearby.²²⁹ Ninety percent had access to sanitation, including 63 percent that were connected to a sewer, 12 percent that had a septic tank, and another 15 percent that used sanitary latrines or evacuated their sewage through sewers discharging into the nearby environment. The poor and the extreme poor also benefited from the increase in coverage: 58 percent of the extreme poor had access to a safe water supply in 2002, up from 38 percent in 1992.²³⁰ However, the coverage level drops sharply from more developed urban areas through the urban periphery and smaller towns to the more remote rural areas.

Table 1: Mexico's Water and Sanitation Coverage is comparatively High

National Coverage (%)	Mexico	Argentina	Braz	Chile	Colombia	LAC Avg.	Philippines	Thailand	Indonesia
Water Supply*	90	94	87	93	91	86	86	84	78
Sanitation*	90	82	76	96	86	77	83	96	55

Sources: Data from WDI (2003a) and CNA Water Statistics in Mexico (2004b). Sanitation data for Mexico are from the 2000 census. East Asia data are from World Bank (2004).

25. **Even when the share of municipal wastewater that receives some degree of treatment is more than twice as high as the Latin American average (30 percent**

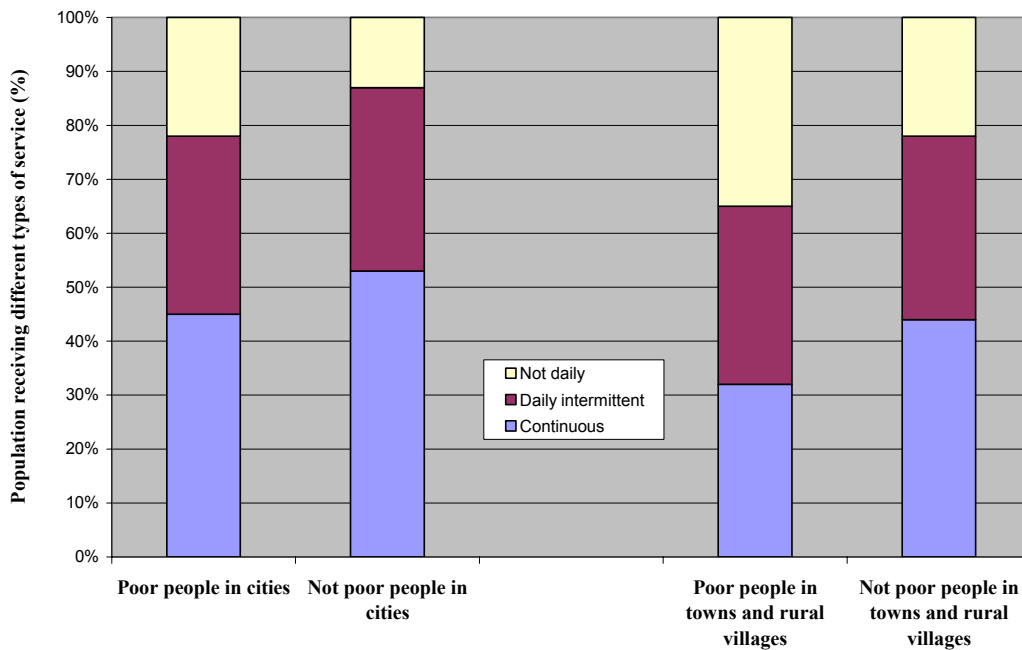
²²⁹ Improved water supply includes four categories: households with a piped supply in the house; households with a piped supply on the plot, but outside the house; public standpipes; and households that bring water from another house with a piped supply.

²³⁰ World Bank (2004a), Poverty Assessment.

compared to 14 percent),²³¹ it remains far below levels in OECD countries. The fact that some of the treatment plants have incorporated sophisticated technologies complicates their operation by utilities that lack the required human and financial resources, resulting in an unknown share of treatment plants that do not comply with norms for effluent discharge.

26. **Service quality and operating efficiency clearly fall short of the levels achieved in other OECD countries and upper-middle-income countries.** According to the 2000 census, only 45 percent of households connected to the water distribution network received a continuous supply; the remaining 55 percent experienced various degrees of interruption to supply.²³² The incidence of intermittent supply is higher in smaller municipalities and for the poor²³³ (Figure 4). This phenomenon puts Mexico clearly behind other OECD countries, where continuous water supply is the norm.

Figure 3: Quality of Water Service in Mexico



Source: CONAGUA

27. **Using non-revenue water²³⁴ as an indicator, operating efficiency levels in Mexico are far below the average level attained in developed countries, and below the level attained in the best-performing quartile of utilities in developing countries, and even the levels of the best performers in Mexico (such as Monterrey, Tijuana, Leon, and Mexicali,**

²³¹ CNA (2004a), “Situación del Sub-Sector,” p. A-76 for Mexico. For Latin America average, see PAHO/WHO (2001:24, 81).

²³² Own calculation, based on census data quoted in Avila (2004), spreadsheet named Anexo I.CC_Agua.

²³³ Avila (2004) based on census data

²³⁴ Non-revenue water is the difference between water supplied and water sold as a percent age of water supplied.

among others). For example, while non-revenue water averaged between 20 and 30 percent in these better utilities, the average is about 44 percent non-revenue water for all Mexico,²³⁵ (Table 2). Water staffing levels vary broadly in Mexico. The average staff per 1,000 connections among a sample of 35 large Mexican utilities was 4.5 in 2000, ranging between 2.8 and 19.6.²³⁶ These data imply ample scope for reducing excess staff at many water utilities.

Table 2: Non-Revenue Water in Mexico compared to other countries

Country (city)	Year	Non-revenue Water (%)
United Kingdom (average)	2000	14
United States	1996	16
Tunis (Tunisia)	2002	20
Mexico (Mexicali)	2000	22
Best-performing quartile of 246 developing country utilities		<23
Asian cities (average of 18)	2001	34
Brazil (Sabesp: Sao Paolo)	2000	38
Latin America (average)	1998	42
Mexico (average)	2002	44
Mexico (Acapulco)	2001	69
Mexico (Oaxaca)	2001	80

Sources: CNA (2004b:42) for Mexican average; data on Mexican cities are from CNA: *Ciudades Estratégicas* (2000) and Barocio (2004); for the Brazilian National Water Information System Diagnóstico 2000; Malaysia and Asian cities from ADB Water in Asian Cities (2004); U.K. and U.S. from IB-Net (International Benchmarking Network); Latin American average from WHO/UNICEF (2000:25). Developing country sample average is from Tynan and Kingdom (2002).

28. **Investment in general favors new construction, and insufficient maintenance contributes to the quality of service problems described above.** This all points to substantial future investment requirements for rehabilitation, and highlights the need for better incentives and funding mechanisms to promote better management of existing assets.

Tariffs, Subsidies, and Cost Recovery

28. **Mexico lacks a coherent national policy framework for setting—and linking—water and sanitation tariffs, subsidies, and cost-recovery goals.** There is no sector strategy to assure that an adequate package of safety-net programs is well targeted towards the poor, and that the rates give appropriate incentives for conservation. Pursuit of cost-recovery tariffs, which reduces the strain on public finances and facilitates private participation, would be more feasible if subsidies and tariffs were targeted to low-income groups.

²³⁵ CNA (2004a), “Situación del Sub-sector,” p. 42. Calculated based on a sample of 157 service providers with reliable data.

²³⁶ The average for 38 utilities in the State of Guanajuato was 4.4 in 2002. The average for a larger sample of utilities at the national level may be higher, since smaller service providers tend to have a higher staff ratio.

29. **The absence of overarching subsidy policies —and the multiplicity of federal, state, and municipal stakeholders involved—produces a wide variation in the degree of cost recovery and subsidies across regions.** Tariffs are set well below costs for some areas and users—even those who could pay. The most common form of user subsidy in water supply and sanitation in Mexico is through low tariffs for certain consumer categories.

30. **Water service providers typically charge industrial and commercial users tariffs that are close to full cost recovery, and cross-subsidize residential users.** The average tariff across users is only about half the Latin America and the Caribbean (LAC) average (US\$0.32 per cubic meter compared to US\$0.65 per cubic meter). About 69 percent of connections are metered and charged through increasing-block tariffs that charge reduced rates to low-volume users, but also large volumes of subsidized water to upper-income users.

31. **There are no reliable figures on total water and sanitation revenues in Mexico.** Water tariff collections have been estimated at MxP14.5 billion (US\$1.54 billion) in 2002. Billed revenues were estimated by various sources at between MxP20.2 billion (US\$2.14 billion) and MxP26.9 billion (US\$2.9 billion) in the same year.²³⁷ On average, it seems that the sector generates only a very modest cash surplus, which is well below the financial performance achieved by the top quartile of utilities in developing countries (Tynan and Kingdom (2002:3). Moreover, this apparent modest surplus among Mexican utilities in part reflects shortfalls in essential spending on maintenance and modernization rather than financial viability. The aggregate figures also mask substantial variations in performance among service providers that depend on municipal subsidies for recurrent costs and those that self-finance substantial investments. This suggests that some service providers in Mexico achieve or exceed international good practice.

32. **The level of collection efficiency in Mexico has been estimated at 72 percent , far below the levels achieved in developed countries, and even in many developing countries** (Table 3). The wide variations within Mexico again show that high levels of performance are achievable in the country. An increase in collection efficiency to 95 percent —close to the best utilities in Mexico—would mobilize more than MxP5 billion annually, without any increase in tariffs. This is more than all federal subsidies outside Ramo 33 provided to the sector in 2003.

²³⁷ The lower figure is taken from CNA (2003), “Situación del Sub-sector,” p. 38, and is calculated from a sample of 437 localities in all states. The higher figure is taken from Barocio (2004), based on extrapolations made from a sample of 192 localities from states for which data was deemed reliable.

Table 3: Water-Tariff Collection Efficiency

Country	Year	Collection / Billing (%)
Mexico (Monterrey)	2004	98
OECD average	1996	95
Asian cities (average of 18)	2001	88
Brazil (average)	2000	87
Mexico (Hermosillo)	1999	85
Mexico (average)	2002	72
Mexico (Matamoros)	1999	45
Mexico (sample of small cities)		20

Sources: CNA, *Situación del subsector agua potable, alcantarillado y saneamiento a diciembre 2001*; SMAPA (Tuxtla Gtz. O.O.) interviews (2004); Capitol Advisors Ltd. Hermosillo Case Study (1999); IDB, the Brazilian National Water Information System, and OECD, *Ciudades Estratégicas* (2000).

33. **Thirty-one percent of water customers are not metered and are charged a flat rate (*cuota fija*) independent of consumption.** In a few instances, flat rates are differentiated by neighborhood, and sometimes sharply so. For example, in the Federal District the flat rate in the highest cadastral category is 20 times higher than in the lowest. Since the level of water consumption does not vary that much among income groups, this type of water tariff may have a progressive incidence. Geographically differentiated tariffs that are even crudely based on poverty levels may reach the poor more effectively than increasing-block tariffs (Foster and Yepes 2005).

34. **The majority of federal water infrastructure spending and transfers are not targeted for poverty reduction, and the distribution strongly favors the wealthier states and localities.** Non-FAIS²³⁸ federal spending for water and sanitation in the wealthiest eight states in 2003 was two and a half times higher per capita than in the poorest eight states (Barocio 2005:71).

The Way Forward—Key Elements

35. These Policy Notes propose a series of recommendations that apply to sector investments, the overall institutional environment and private sector participation. **First, the water and sanitation sector investment should focus on three key activities: (i) extending water and sanitation services to the poor; (ii) expanding wastewater treatment; and (iii) increasing efficiency of the systems.** Such investments have an important strategic value, and in some cases could be co-financed with the private sector.

⇒ *Extend services to the poor*

36. **Devoting a greater share of federal resources to water and sanitation for poor households should not imply a significant increase in spending.** On the contrary, targeting investments to poor communities and poor households in peri-urban areas would release substantial resources for other uses. To the extent that consumption of these groups merits

²³⁸ FAIS is the federal Fund for Assistance to Social Infrastructure.

subsidization, it should be limited to satisfying minimum basic needs. Moreover, delivering service to the poor need not be costly, and relaxing technical norms (such as with the condominium systems) governing choice of technology and billing methods have proven their worth in other countries. Additionally, relaxing statutory monopoly rights of the large public sector operators to permit small-scale providers to serve isolated communities in partnership with the network utility (or the municipality), offers substantial benefits to both the utility and to households with little or no service at present. In designing a strategy to extend the services to the poor, Mexico could streamline some of the existing sector programs (such as APAZU), leveraging federal, state, and municipal resources with users contributions as well as financial assistance from the multilateral banks.

⇒ *Expand Wastewater Treatment*

37. **Given the generalized water quality problems in Mexico, development and implementation of a wastewater treatment strategy is warranted.** The strategy could build upon the experience of PROMAGUA, improving the incentives for private sector participation in the financing, construction and operation of the plants. Under the FINFRA²³⁹ platform, it would be possible to make successful treatment BOTs without contingent credit lines. In this case, the structure of the financing should be rated with a minimum grade of A in the country scale. Given the experience in Mexico with important treatment plants operating in a suboptimal manner, a new program could be designed on the basis of the *output-based-aid* (OBA) scheme by which, transfers are made on the basis of results attained --in this case, the volume of organic matter removed. Revenues collected through the discharge fee and a specific charge for sanitation included on all water bills could constitute sources of funding for this program. International examples, like the Brazilian PRODES, and local cases in Guanajuato, could serve as basis for the new concept in Mexico.

⇒ *Increase efficiency*

38. **Several measures could improve efficiency and strengthen accountability for performance, without major changes in water sector organization.** Municipal and state water companies in many localities could be fully constituted as autonomous, commercial enterprises, which would allow them to generate additional resources to increase investments in rehabilitation and maintenance and devote more resources to co-financing wastewater treatment investments. There are many examples of efficient water utilities in Mexico (Monterrey, Tijuana, Leon, Puerto Vallarta) which could constitute a starting point for scaling up a national strategy for efficiency improvement in the sector.

39. **Second, better design of investment programs and selection of projects would improve outcomes.** To improve the cost-effectiveness of federally funded programs and thus reduce the magnitude of subsidies needed from budget, closer coordination is required along several dimensions: between CONAGUA and the Ministry of Finance and Public Credit

²³⁹ PROMAGUA is the *Programa para la Modernización de los Prestadores del Servicio de Agua y Saneamiento* (Program for the Modernization of Water and Sanitation Service Providers). FINFRA is the *Fondo de Inversión en Infraestructura* (Infrastructure Investment Fund) established in the BANOBRAS development bank.

(*Secretaría de Hacienda y Crédito Público*, SHCP) to keep long-term sector development plans in line with budgetary and broader fiscal realities; between the SHCP and SEMARNAT to weed out projects of questionable viability, and across levels of government. Policy coordination is crucial in water and sanitation, where local governments set most tariffs and governance conditions under which water companies operate, while the Federal Government continues to provide the largest share of concessional resources for investment and State Governments fulfill varied roles. Hence, Mexican taxpayers, largely outside the local jurisdiction, bear the cost of local pricing and investment decisions.

40. **Even with limited competition, regulation, and financial market involvement, the government could still discipline operators' performance by making the size and type of transfer dependent on the progress in realizing genuine improvements in coverage, efficiency and quality of service.** Such performance-based allocations could be applied in setting up the *sistema financiero del agua* (water financial system), which was stipulated in the recent modifications to the national water law but is yet to be established.

41. **For performance criteria to genuinely affect resource allocation decisions, future resource availability needs to be predictable,** such as through multiyear resource envelopes and budget ceilings. Even in the interim, as procedures and systems are established for performance-based budgetary allocation, multiyear budgeting would permit more effective planning and efficient program execution.

42. **Third, regulation of tariffs and supervision of service quality is largely absent at present.** This regulation and supervision could improve the incentives for municipal providers to improve performance and start creating the environment for the effective use of private investment, as legal barriers for the latter are removed. Improving sector performance will require greater clarity and coherency on policy goals and instruments, institutional responsibilities for establishing and regulating service providers, and pricing policies commensurate with those goals. The goals should make explicit the major policy decision, such as the desired levels of access and service quality, the required levels of investments and potential sources of financing, and how noncompliance with regulations would be sanctioned. Although municipalities have primary jurisdiction for water supply and sanitation services, they have little technical capacity for policymaking and regulation, so state water agencies might need to take this role. This would offer the advantages of consistency in policy and investment planning across hydrologically and politically interdependent geographic areas, and of administrative and financial capacity and the ability to coordinate federal (and state) assistance. The *Comisiones Estatales de Agua* are well placed to carry out planning and policymaking functions, and key regulatory, monitoring, and oversight functions. This would imply building the capacity of the state water commissions and municipal agencies in performance monitoring, planning, and the revision of tariffs.

43. **Fourth, private finance for water and sanitation could be mobilized to a much greater extent to leverage public resources.** Currently, there is a limited private participation in the financing, construction, and operation of wastewater treatment facilities. Concerns about utilities' present and future creditworthiness, the Federal Government's future willingness to step in to cover subnational or public enterprise obligations, and the lack of

arms-length regulation strongly limit investor interest. Efforts should be directed at the source of the uncertainty: namely the likelihood of political interference in the capacity of the purchasing distributor to pay for the service.

44. **Fifth, federal credit enhancements will be required to attract sizable sums of private funding from domestic and international sources, but their design and functioning need revision.** To date, PSP projects have generally been backed by full guarantees of cash flow or equity returns (FINFRA). This requires the government to take on more risks than necessary, and hence carry significantly larger contingent liabilities. Negative covenants may also reduce financing costs, but the enhancements will also require some kind of security based on assets or cash flow.

B. Water Services for Agriculture: Irrigation and Drainage

52. **While agriculture is not a major sector in the Mexican economy, it is the primary user of water and is an important source of income and livelihood for the poor.** Agriculture only contributes to about 3.5 percent of the gross value of production, 4 percent of national exports and 2.5 percent of imports. However, agriculture accounts for about 80 percent of total water withdrawals, relying on the unsustainable use of water resources in the northern and central parts of the country where most of the economic activities are located and most of the people live. As the primary user of water, agriculture is instrumental in improving overall WRM in Mexico. Agriculture is also important in the context of poverty alleviation, especially among indigenous populations. Agriculture employs 20 percent of the labor force.

53. **Irrigation is a very important element of Mexican agriculture.** Irrigated agriculture totals about 25 percent of the cultivated area, accounts for 50 percent of the value of agricultural production and 70 percent of agricultural exports, and employs 70 percent of the agricultural labor force. Moreover, in large parts of the country, there are very few alternatives to irrigated agriculture, because the level of rainfall only allows the production of low-value rainfed crops or does not allow rainfed agriculture altogether.

54. **The main challenge facing the agriculture sector is to increase its competitiveness in the context of the 15-year phase out of tariffs and quotas** (ending in 2008) with the USA and Canada and the multiplication of FTAs between the USA and regional competitors, which erodes Mexico's preferential treatment. This is combined with the equally important challenges of preventing the degradation of natural resources (especially water) and reducing rural poverty. In this context, **improving the performance of irrigated agriculture and water resources management is critical**, as (a) irrigated agriculture is the main source of agricultural exports and agricultural jobs; (b) irrigated agriculture, including the production of high value crops for exports, relies on unsustainable use of water resources and (c) the potential to improve irrigated agriculture land, labor and water productivity is high.

55. Trade liberalization and some of the policy interventions to support the competitiveness of agricultural production have fostered the degradation of water resources.

Conversely, the degradation of water resources constrains the competitiveness of the Mexican agriculture and indeed, of the rest of the economy.

Agriculture and Irrigation performance

56. **Agriculture performance has been lagging behind compared to the Mexican economy as a whole.** The agriculture sector grew more slowly than the rest of the Mexican economy: agriculture GDP growth averaged 1.9 percent between 1984 and 2004, against 3 percent for the overall economy. Its shares of the GDP, the labor force and its contribution to exports, have all been decreasing over the past 20 years (Table 4).

Table 4: Share of the agriculture sector in total GDP, labor force and exports

	1980	2004
Share of GDP	8%	5%
Share of labor force	36%	20%
Share of total exports	13%	4%

Source: Mexico's Competitiveness: reaching its potential, World Bank, 2006

57. **An increase in yields, partly due to a shift towards higher value crops compensated somewhat for a dramatic fall in the real price for food crop output.** The harvested area increased little in the 1980s and nothing in the 1990s, pointing to the exhaustion of the crop frontier in Mexico. Real prices fell dramatically, especially in the 1990s, largely as a consequence of the opening of the economy. The average yield, however, has increased as a result of modest and uneven improvements in the yields of individual crops, and of shifts from low to higher value crops--particularly from cereals and oil crops to vegetables and fruits.

58. **Agricultural performance has been lagging behind major regional competitors.** Growth in land productivity and total factor productivity²⁴⁰ (TFP) have been smaller than in other major LAC competitors, and with few exceptions, land and labor productivity are low compared to those countries.

- Between 1980 and 2002, land productivity grew by 30 percent in Mexico, which can be considered reasonable performance. However, Argentina, Brazil and Colombia show increases ranging from 50 to 70 percent . With a few notable exceptions, yields are fairly low in Mexico.
- Mexico has lost momentum in agricultural efficiency. Between 1980 and 2002, annual TFP growth in Mexico was 1.5 percent , compared to 1.7 percent in Colombia, 2 percent in Chile, 3.2 percent in Brazil and 2.35 percent in Argentina.
- Labor productivity measured by the agricultural output per worker is estimated at US\$2,533 in Mexico compared to US\$3,766 for Latin America overall.

²⁴⁰ TFP measures productivity growth not captured by the contributions of individual production factors. It thus explains the impact of technology improvements measured as the residual output growth after the effect of growth in all factors has been considered.

58. **Irrigation covers 6.4 million hectares and uses about 80 percent of freshwater withdrawal.** There are three main forms of irrigation in Mexico: (a) large-scale public irrigation schemes (irrigation districts, IDs), covering 53 percent of the irrigated area, whose construction was financed by the federal budget and whose operation and maintenance (O&M) has been almost entirely transferred to water users associations in the 1990s; (b) smaller-scale “public” irrigation schemes (irrigation units, IUs), covering 31 percent of the area, whose development was originally financed from public resources but whose O&M was the responsibility of water users from the start; and (c) private individual irrigation schemes covering 15 percent of the agriculture area, whose development and management is the entire responsibility of individual farmers. While IDs rely primarily on surface water, IUs and private irrigation schemes are mostly supplied from groundwater. IDs grow primarily low-value crops such as cereals. IUs have a more diversified cropping mix, but still primarily grow low value crops. Most vegetables and fruit crops are grown in the private irrigation schemes.

Table 5: Three types of irrigation systems

Irrigation systems	Number of systems	Area (000 ha)	Source of water	Crops
Irrigation districts	82	3,396	Mostly surface water	Mostly cereals
Irrigation units	22,734	2,062	Mostly groundwater	Mixed, but with a high share of cereals
Private irrigation	16,758	894	Mostly groundwater	Mostly vegetable and fruit trees
Total	39,574	6,352		

48. **The irrigation sector as a whole falls short of generating sufficient revenues to cover full cost.** The O&M of most irrigated infrastructure is under the responsibility of individual farmers or farmers organized in WUAs (Water User Associations - *Asociaciones Civiles de Usuarios*). Only in the case of the IDs, about 5 percent of the area is still managed directly by CONAGUA in addition to upstream infrastructure, such as dams, large canals and pumping stations. In the IUs and private irrigation schemes, farmers support the entire cost of the O&M of irrigation infrastructure. In IDs the majority of the O&M costs are paid by farmers and the rest by CONAGUA.

49. **In the IDs, farmers, organized in WUAs, are in charge of the O&M of most of the irrigation infrastructure at the tertiary and secondary network levels, and, in some cases, of the primary canals as well.** In the 90’s, the O&M of the tertiary and secondary networks (i.e. modules) were transferred to farmers organized in WUAs. Today, 452 WUAs totaling 506,000 water users manage the irrigation infrastructure spreading over 3.3 million ha, or 95 percent of the area covered by the IDs. CONAGUA is still responsible for the head structures (dams, multiuse canals and pumping stations) and for overseeing WUAs management. Farmers pay a water tariff to cover the O&M of the WUAs, which includes a service charge for bulk water deliveries from CONAGUA to partially financing expenses for O&M of head infrastructure.

50. **Transfer of the O&M of irrigation infrastructure to WUAs has substantially increased financial self-sufficiency in the IDs.** Between 1998 and 2002, cost recovery from

farmers averaged 72 percent of the administration and O&M costs of the 82 IDs through the water tariff, while the balance was financed by CONAGUA from other sources. More than 90 percent²⁴¹ of farmers pay their assessed charges, primarily because they have to pay in advance for WUA services.

51. **Cost-recovery in the IDs is low, but in line with international practices** (Table 6). Low cost recovery is a common issue in the irrigation sector. When even O&M costs are not recovered from farmers, this creates serious problems both for the irrigation agencies and for farmers in the long-run, because the sustainability of the infrastructure depends on continued government subsidies. It is important to point out that Mexico's program of transferring O&M responsibilities to WUAs is considered throughout the world to be excellent and highly successful example.

Table 6 Cost-recovery in Irrigation

	Collection rate	Percent age of cost recovered
Tunisia 1991	NA	70 percent of O&M costs
Turkey 1998	76 percent	37 percent of total costs
Colombia 1996	76 percent	52 percent of O&M costs
Mexico 1998-2002 (IDs)	90 percent	72 percent of O&M costs
Morocco, 2004 (large scale irrigation)	50-60 percent	54 to 190 percent of O&M costs (depending on the irrigation scheme considered)
Italy 1997	NA	60 percent of total costs
Jordan 1999	NA	50 percent of O&M costs

Sources: Cost recovery and Water Pricing for Irrigation and Drainage Projects, World Bank, 2005 and Maroc, Réforme Institutionnelle du Secteur de la Grande Irrigation, World Bank, 2004.

59. **Irrigation has received subsidized tax-financed investment, low water tariffs, zero water use fee (in accordance with the Federal Rights Law), a low subsidized electricity price for pumping, and import restrictions and duties on agricultural products.** This has gone on for a long time and led to the heavy use of water for low value crops in areas of water scarcity. The distortions of the water subsidy have become incorporated into the value of land and other agricultural investments. Where water is drawn from wells, as in the drier regions, the effective price includes equipment and electricity for pumping, but a heavy subsidy for electricity to agriculture significantly reduces this potential incentive for conservation. One study²⁴² estimates that eliminating the electricity subsidy would reduce overexploitation of groundwater resources by about 20 percent in water-scarce areas. Thus, farmers irrigate low-value crops like wheat, corn, sorghum and alfalfa, while much higher value uses in agriculture and industry face water shortages. Indeed, most of the high-value crops produced for exports, which provided most of the dynamism in crop production in recent years, rely on unsustainable groundwater abstraction. The high water demand of the agricultural sector in the northern part of the country puts pressure on the expansion of the industry and service sectors.

²⁴¹ Zekri and Easter, 2003

²⁴² Agriculture Demand for Groundwater in Mexico, Background Paper prepared for the economic assessment of policy interventions in the water sector, World Bank, 2006.

The Way Forward—Key Elements

60. **First, there is a need to reduce net water abstraction for irrigation in water scarce areas.** There is a pressing need to reduce “net” water withdrawal (extraction minus return flow) in over-exploited basins and aquifers through: (a) shifting to higher value, less water consuming crops and/or (b) decreasing the irrigated area. Support to irrigation and drainage should be planned within the context of the IWRMPs at the basin or aquifer level, starting with a water balance analysis. In most areas in northern and central Mexico, there are sufficient water resources to meet all high-level water needs (i.e. environment, domestic, industries, high-value crops) and still have some water available for low value crop production.

61. **Improving the efficiency of existing irrigation systems on existing lands will not by itself solve the systemic problem of water scarcity,** because these local efficiency improvements eliminate infiltration and operational “losses” that replenish water resources of the area. Rather than saving water, efficiency improvements in this way can increase water consumption. Efficiency improvements should still be undertaken, but they should take into account the need to reduce the **net** extraction of water, if resources are already overexploited.

62. **Second, in large surface water irrigation schemes (mainly Irrigation Districts), there is a need to keep costs low and improve productivity of low-value crops in order to maintain competitiveness.** Trade barrier reductions have resulted in large increases in imports of maize, sorghum and wheat. Nevertheless increased demand has resulted in continued production of maize and sorghum (a major portion of which is produced in large surface water irrigation areas). Irrigated wheat production has decreased significantly mainly because of lack of competitiveness. It appears to be feasible to continue to maintain competitiveness in maize and sorghum production in irrigated areas, but an intensive program to reduce costs and increase yields will be required.

63. **Third, in overexploited groundwater areas (mainly Irrigation Units), there is a strong need to transition from the irrigation of low value crops to high-value crops on reduced areas, to promote more rainfed agriculture and to provide other gainful activities to farmers who stop irrigating.** Irrigation using groundwater is more expensive than with surface water because of increased pumping and energy costs and the production of low-value crops in these areas will probably not be competitive, especially if the costs of the environmental degradation are taken into account. In some critical aquifer areas, irrigated area will need to be reduced by more than 50 percent in order to reduce extractions to sustainable levels. High-value crop production can produce much higher economic returns and also generate many more jobs than low-value crop production. It is therefore quite feasible to make these transitions and still increase incomes. Programs will need to be designed to ensure that the poor are not negatively impacted, but instead benefit.

64. **Fourth, the greatest potential for improving competitiveness in irrigated agriculture will come from conversion to high-value crops and state-of-the-art irrigation, agriculture and processing technology.** The export market potential for fruits, vegetables, sugar and other similar crops is quite large, but the commercialization is difficult and the market risks are high. Large investments in irrigation drip systems, plasticulture,

green houses and post harvest processing and transport will be needed and these will also normally result in high economic returns. Experience indicates that changing technology—as compared to changing crops—requires time; investment and capacity building. The reorientation plans and programs should consider this complexity.

65 **Fifth, Mexico needs to significantly increase grain and forage crop production through non-irrigated rainfed agriculture in parts of the country where rainfall is adequate for this purpose.** Here usually drainage, flood zoning and in some cases flood control infrastructure is required. An important strategy to partially deal with the overexploitation and economic issues discussed above would be to greatly increase support and programs for rainfed agriculture. The periodically inundated tropical zones in the Southeastern part of the country in particular have good soils and a high potential for increasing rainfed agriculture. Keeping in mind the high degree of regional inequality, this strategy would also benefit the poor because many of them are located in the more humid rural areas in the southern part of the country.

66. **Sixth, the water pricing and support policies in the irrigation sector need to be revised.** Eliminating, reducing or decoupling the energy subsidy (*Tarifa 09*) and other agriculture support measures (i.e. Aserca price and marketing support) that encourage water abstraction in water scarce areas is very important and needed. The electricity subsidy, by lowering the production cost of water, has boosted the use of scarce water resources for the production of low value crops and is one of the main factors explaining groundwater over-exploitation. The electricity subsidy in agriculture which amounts to about MxP7,300 million pesos is unevenly distributed, favoring richer farmers in the north growing higher value crops for exports (Gini coef: 0.91). It is important to point out that even without changes to the energy subsidy, if significant reductions in groundwater overexploitation can be achieved by other means, this would result in decreases in pumping and therefore in government subsidies. This saving should be recognized by the government, justifying larger investments in water conservation in groundwater areas. It will be important to ensure that any subsidy reorientation program take into account the poor and ensure that they are not negatively impacted but in fact benefit from the program.

67. **Seventh, there is a need to generalize volumetric pricing in the irrigation areas.** Payments made on a land area and crop type basis do not encourage water use efficiency in the transmission and distribution networks nor at the farm level because this method does not provide an incentive to reduce water losses or improve onfarm efficiencies; revenue is the same whatever the volume delivered to farmers. Mexico has recently been implementing a major program to install measurement devices. It will be important to continue and scale up these activities in order to be able to adequately implement volumetric pricing.

III. Further Institutional Challenges

68. The following cross-cutting institutional issues would need to be addressed in order to improve the overall performance of the water sector.

⇒ *Develop Better Planning and Coordination Mechanisms*

69. **The role of the Government in the sector should change, shifting its focus from public investment programs to issues of strategic direction, decentralization, private sector participation, and financial support.** Central coordination is essential, given the cross-cutting nature of these issues and their economic and political impacts. Disjointed decision making about funding allocations has contributed to sector outcomes not linked with national development priorities. Central budget funding should be used to prioritize activities that pursue the government's objective of reducing poverty and improving environmental quality.

70. **Closer coordination between the planning processes of national and state governments and the annual budget formulation process is necessary to set more realistic and attainable goals.** Experience in the United States and other federal nations in the OECD shows the value of using matching grants, with multiyear projections and dependence on meeting performance standards. The revolving funds programs for water and wastewater in U.S. states provide good examples.

71. **Multiyear resource envelopes should be used to strengthen planning and better link it with budgeting.** This includes outlays for multiyear projects and with debt service operations and maintenance. The use of multiyear resource envelopes would also avoid the need to fragment larger projects into pieces that can be finished in a year or less, and the accompanying higher total costs. This would be a logical next step from the present practice of having multiyear budgets only for individual projects, toward the concept of complete multiyear budgets and fiscal projections. For a sector that involves several levels of government, like water, experience in the United States and other federations in the OECD shows the value of using matching grants, with multiyear projections and dependence on meeting performance standards.

⇒ *Increase accountability and improve information systems and outcome performance monitoring and evaluation*

72. **There is little systematic information on whether projects have had good or bad results, and such information rarely has any budgetary consequences.** While CONAGUA and subnational governments are demanding greater autonomy in investment planning, execution, and financing, effective accountability should accompany autonomy. Indeed, without reliable, verifiable information on actual performance, it is risky to respond unconditionally to demands for more autonomy. Rather, increments to autonomy should depend on improvements in accountability.

73. **Being accountable and meeting performance standards requires systems for the evaluation of large-scale federally funded programs, with respect to their efficacy and**

efficiency in achieving measurable quality and sustainability of service outcomes. An *ex post* evaluation would provide valuable information on what strategies work and why—informing the design of future programs. Such evaluations can also help establish incentives for good performance and lead to greater transparency.

74. **Better performance tracking and information disclosure will require standardized reporting on performance of water companies’ irrigation districts and irrigation units through an expansion of CONAGUA’s sistema de información nacional (national information system).** Such measures do not require large sums of money, yet they do require building institutional capacities in CONAGUA and subnational governments, and sustained political commitment to transparency.

IV. Follow up on 2000 Policy Notes

11. There has been some progress since the last government transition in 2000, particularly in the areas of improved water resources monitoring and assessment and passing of the 2004 amendment to the Water Law. It should be noted, however, that **most of the challenges from 2000 are still pending.** The box below summarizes the 2000 Policy Note and its present status.

2000 Policy Notes’ Recommendation	Achievements	Status
Complete decentralization of WRM	Passage of 2004 amended Water Law	Law not yet regulated. Still highly centralized
Introduce and enforce water use fees for all users	A small water use fee for irrigated agriculture was introduced for water use in excess of water rights. Water fee collection from municipalities has increased dramatically because of government decrees making federal investment subsidies contingent upon fee payment including a special program (PRODDER) to return fees paid by municipalities for efficiency improvement purposes.	Still need to improve fee structure and collection efficiency
Improve water rights administration and facilitate water market	More users registered and some measuring devices installed	Major improvements still needed
Better integrate irrigation districts and units and municipal water utilities with basin and aquifer-level planning and decision making	Some good irrigation district and unit master plans and municipal water utility plans have been developed	Irrigation and water supply and sanitation still planned and managed as central sectoral programs. Still not well integrated into basin and aquifer level planning
Increase autonomy and operational and financial	Some improvements in some municipalities, e.g. Monterrey, Tijuana,	Most municipalities still highly dependent on federal government

sustainability of water supply companies	Leon, and Mexicali	support and subsidies. Still high levels of unaccounted for water and other inefficiencies
Improve policy making and institutional mechanisms, including regulation and private sector participation	Modest progress in engaging the private sector in wastewater treatment plants	Still need for streamlining the federal programs and establishing a clear role for the state water commissions.
Improve cost recovery in irrigation	Some improvements in O&M cost recovering and sharing of investment costs	Full cost recovery of O&M still pending

V. Action Plan

Step 1 – 6 months – Design stage.

- Review institutional capabilities of CONAGUA central and regional offices, as well as state offices, BCs, COTAs, WUAs and Municipal Water Utilities.
- Evaluate needs for strengthening to transition to deconcentrated and decentralized water resources management through BAs and BCs in accordance with the 2004 amended Water Law.
- Review and revise water user fee and water pollution discharge fee processes and procedures and design mechanisms and requirements for transferring these responsibilities to pilot basins.
- Review and revise water rights administration processes and procedures to improve water resources management and to implement a well-functioning water market at the basin level.
- Design capacity building programs in state water commissions, enhancing their role in the sector.
- Expand the national water information system - *sistema de información nacional del agua*.
- Incorporate greater poverty targeting in WSS programs.
- Design a new program to significantly increase wastewater treatment, focusing on results.
- Design and revise credit enhancement mechanisms in WSS and in irrigation.

- Review pricing and subsidy policies in irrigated agriculture and develop a subsidy reorientation and adjustment plan.
- Design programs to promote conversion to higher value crops in groundwater areas.
- Design programs to increase support to rainfed agriculture in humid southern areas of the country.
- Design programs for returning all fee and penalty rate setting and collections responsibilities to basin-level entities for investments and management actions.
- Select 1 or 2 pilot basins for development and testing new institutional framework and mechanisms.
- Develop and/or update a complete set of regulations, norms, standards for decentralized and deconcentrated: (a) integrated water resources management and planning; (b) water supply and sanitation; (c) irrigation and drainage; (d) water rights administration; and (e) other areas under the responsibility of CONAGUA.
- Develop and/or update a detailed monitoring and evaluation program including indicators and benchmarking objectives for detailed oversight of decentralized and deconcentrated activities.

Step 2 – 2 years – Pilot stage in the Pilot Basins and in other areas where feasible

- Prepare IWRMPs for basins and aquifers in pilot basins. Define both structural and non-structural actions (including institutional strengthening needs), as well as sources and uses of financial resources to implement the actions. The plans should focus on limiting water use to sustainable levels and ensuring adequate water availability for high-value uses and the environment.
- Design and implement changes in water fee rates and collection as well as pollution discharge fees that increase collection and reduce water use and pollution. Implement programs that return all fee and penalty collections to basin-level entities for investments and management actions.
- Implement expansion of services to the poor, expansion of wastewater treatment and increasing system efficiencies.
- Implement regulation of tariffs and supervision of WSS service quality.
- Implement credit enhancement programs in WSS and in irrigation.
- Implement other changes in pricing and subsidy programs.
- Implement programs to convert to higher value crops on less land in groundwater areas.

- Implement programs to increase support to rainfed agriculture in humid southern areas of the country.
- Improve water rights administration including improving records, and better measurement and enforcement.
- Prepare and implement basin and aquifer regulations to reduce water rights to sustainable levels.
- Prepare annual budgets based on basin plans/programs not on central sectoral programs.
- Begin implementation of the IWRMPs
- Implement and refine the complete set of regulations, norms, standards for decentralized and deconcentrated: (a) integrated water resources management and planning; (b) water supply and sanitation; (c) irrigation and drainage; (d) water rights administration; and (e) other areas under the responsibility of CONAGUA.
- Implement and refine the detailed monitoring and evaluation program including indicators and benchmarking objectives for detailed oversight of decentralized and deconcentrated activities.

Step 3 – 6 years – Full implementation stage

- Implement full-scale deconcentration and decentralization of water resources management throughout the country utilizing experience from pilot stage.
- Institutionalize financial and operational autonomy of water operators.
- Make sector transfers conditional to actual performance improvements and formalize in *sistema financiero del agua*.
- Shift credit support from up-front transfers to partial contingent guarantee mechanisms to improve risk allocation.
- Develop the institutional capacity of the state water commissions.

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Chapter 10: OIL AND GAS SECTOR

Enrique Crousillat and Juan Carlos Quiroz

Mexico is the sixth largest oil producer in the world; however, proven reserves have declined sharply and today represent only about 10 years of production. This situation would change only if there is an increase in investment leading to important new discoveries. Even with new discoveries, it is likely that production costs will increase, limiting the state oil and gas monopoly PEMEX's profitability and its contribution to the Federal budget. The natural gas sector is characterized by high consumption levels, combined with increasing reliance on imports, which have already reached 15 to 20 percent of consumption. Natural gas prices in Mexico have been rising rapidly, and are now amongst the highest in the world. Although the Government has made attempts to increase non-associated gas production involving private companies through service contracts, the outcome has been disappointing.

There are warning signs that the current institutional arrangements and production models are not sustainable. Policy decisions necessarily involve a trade-off between short term fiscal revenue requirements and the need for a sustainable hydrocarbon sector able to maximize its contribution to economic and social welfare in the long term. The Government could seek ways to attract private participation in order to help meet the financing challenges of the sector, introduce stronger efficiency incentives and mobilize state-of-the-art technology. Some interim measures could be taken to improve incentives for PEMEX's performance. One could create performance indicators for PEMEX in order to improve internal efficiency of the company. Transparency measures could also provide incentives for improved performance.

Introduction

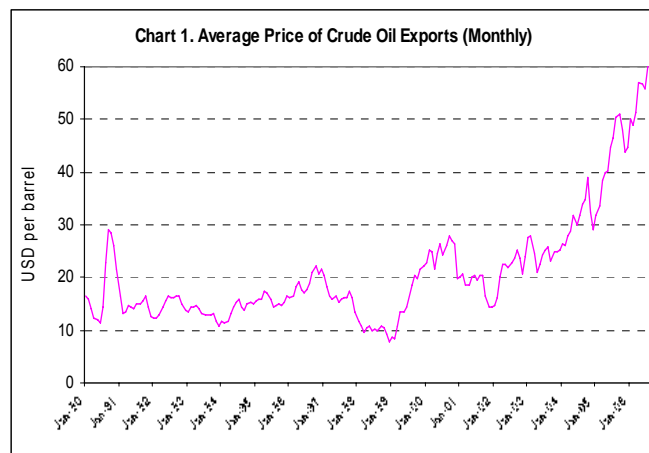
1. **Mexico is a major energy producer, exporter and consumer.** The energy sector is of strategic importance to the economy, and a driver of economic growth, productivity and competitiveness. How the sector is managed and performs therefore has profound implications for the economy and public finances. As producer and exporter, Mexico receives a significant inflow of oil revenues that accrue to the Treasury, which in turn could finance broader social policies and programs which depend heavily on federal funding. As a consumer, Mexico requires that the oil and gas sector provides in a timely and efficient way the necessary inputs to support economic activities.

2. **Previous studies²⁴³ have stressed the need for Mexico to enhance the oil and gas sectors' competitiveness, improve their efficiency, lower their costs, and expand their contribution to the federal budget and the economy in a sustainable way.** For many years, the energy sector was trapped in a vicious circle: a reduced federal budget and limited borrowing capacity led to insufficient sector investment. This in turn, resulted in declines in exploratory and development activities, causing a sharp reduction in proven reserves, which could potentially affect future production and hence government revenue, making it more difficult to fund other priority federal programs.²⁴⁴ Due to the high dependence of the federal budget on oil revenues, the government faces an imperative choice between the call to spend on urgent social programs, such as health, education, and providing rural services and the need to invest in infrastructure to meet the growing demand for energy and to provide resources to continue financing future public spending.

3. **For the energy sector to maximize its contribution to economic and social welfare, the Government needs to focus on measures to guarantee the sustainable contribution of the sector to the economy; minimize net demands of the sector on public finances; reach international levels of efficiency; and mitigate environmental impacts associated with the expansion of the energy sector.** Achieving these goals would require opening the sector to new participants; introduce direct competition where feasible; provide greater autonomy and accountability for the state enterprises which operate in the sector; and strengthen regulatory agencies to effectively regulate all the players in the sector and provide adequate price signals.

Recent performance and trends

4. **An important oil producer, Mexico has benefited in recent years from substantial petroleum windfalls.** The average price for the Mexican oil basket moved up from a low of about US\$10 per barrel in 1998 to US\$54 per barrel in the first seven months of 2006 (Chart 1). Accordingly, Petroleos Mexicanos (PEMEX), the national oil company has recently announced record sales: a total of US\$86 billion in 2005, which almost doubles the US\$48.9 billion from 2000. PEMEX earnings before taxes amounted to US\$55.3 billion in 2005, ahead of companies such as BP, Shell, Total and Chevron, and second only to Exxon-Mobil. Also, in 2005 the company achieved the biggest export earnings ever (more than US\$39 billion).



Source: Secretary of Energy.

²⁴³ *Mexico: A Comprehensive Development Agenda for the New Era*, 2000; Bacon and Halpern (ESMAP), 2004; IPER, 2005; DPL, 2006.

²⁴⁴ See: Moroney and Dieck-Assad. *Energy and Sustainable Development in Mexico*. Texas A&M University Press, 2005.

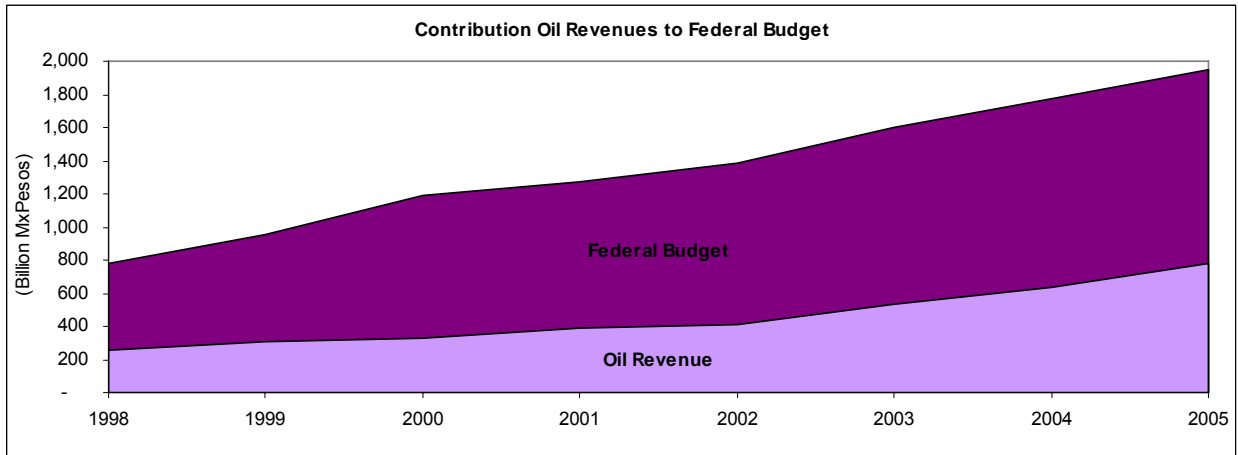
5. **PEMEX has also been producing at record levels.** Crude oil production increased from 3.01 million barrels daily (mbd) in 2000 to a peak of 3.38 mbd in 2004, and has remained stable around those levels since then. During recent years, PEMEX also managed to stop the decreasing trend in natural gas production. Natural gas production reached a low of 4.4 billion cubic feet daily (bcfd) in 2002; since then, production has recovered and natural gas production amounted to 4.81 bcfd in 2005 and 5.28 bcfd in the period January-September 2006.

6. **Despite record sales and production levels, there are warning signs that this outstanding performance might turn unsustainable in the future.** The company's earnings before taxes turn into losses after the federal treasury takes its share (60.8 percent of total revenue until 2005). In addition, PEMEX is the world's most indebted oil company with a \$49.9 billion debt, which poses a considerable burden on the company's capacity to finance future investment needs. In addition, pension liabilities are a growing problem that threatens the company's future financial performance. On the refining side, the company has focused on the reconfiguration of its installed capacity to process larger quantities of heavy crude oil. However, no new capacity has been added in a decade, causing production of refined products to remain stable around 1.30 mbd in recent years. As consumption of refined oil products has increased, imports have expanded and currently represents nearly 15 percent of domestic consumption.

7. **Although PEMEX's relative contribution to the economy has declined in the past two decades (it reached 3.8 percent of GDP in 2002) oil revenues still contribute at least one-third to the Federal budget—in 2005 and 2006 this proportion rose to almost 40 percent (Chart 2).²⁴⁵** This dependence makes both PEMEX and the national budget highly vulnerable to fluctuations in international oil prices and other shocks affecting the oil market. In addition, *the company's financial obligations to the government complicate the implementation of a sound program of investments and capital expenditures, which is essential to sustain efficient production levels and increase proven hydrocarbon reserves, affecting the company's capacity to generate revenue in the future.*

²⁴⁵ According to the IMF (October 2006) total oil revenue—including fuel excise tax and net of PEMEX imports—was equivalent to 8.7 percent of GDP, and petroleum export earnings were 23 percent of total exports, up from 6.5 percent and 10 percent respectively in 2000. A large part of these revenues are returned to the sector to pay for operating expenses, PEMEX's investment program and to make provision for financial obligations. In 2005, the national oil company received a total of MX\$296.4 billion (including allocations from the Federal budget, reimbursement gains duty and PIDIREGAS), while oil revenues were MX\$726 billion.

Chart 2



Source: SHCP, Informe sobre la Situación Económica, las Finanzas Públicas y la Deuda Pública, varios años.

Note: Oil revenue includes PEMEX income, hydrocarbon duties, taxes on oil windfalls, and excise tax on gasoline and diesel.

8. **Reforms to the institutional and fiscal structures that link PEMEX to Hacienda as well as measures to promote private sector participation in the industry have lacked Congressional support.** Instead, Congress has chosen a cautious approach. As of January 1, 2006 Mexico adopted a new tax structure for its oil and gas industry aimed at ensuring the financial stability of the national oil company through a small reduction in the effective tax rate paid by PEMEX. The new fiscal regime, however, is insufficient to counter PEMEX's financial losses and to provide the company the necessary means to continue exploration and production activities, to maintain and modernize its existing facilities and systems, and to reduce its soaring debt.

Main challenges

9. **Six years ago PEMEX designed an ambitious program to increase oil production to a level of 4 mbd at the end of 2006.** Although production did increase in the past six years, it fell short of this objective. Moreover, the rise in production has been accompanied by a fall in proven reserves, which has brought down the reserves/production ratio from 23 years in 2000 to 10 years in 2006 (Table 1).²⁴⁶ Also, officials have recently warned that the gigantic Cantarell oil field, which accounts for nearly 60 percent of Mexico's daily output, has entered into an early and sharp decline.

²⁴⁶ The adjustment to take the Chicontepec oil reservoir out of proven reserves in 2002 reduced the reserves/production ratio to 16 years alone.

Table 1. Reserves and Production of Hydrocarbons (millions of barrels of oil equivalent)

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total	56,505	57,741	58,204	56,154	52,951	50,032	48,041	46,914	46,418
Proven	n.a.	34,180	34,104	32,614	30,837	20,077	18,895	17,650	16,470
Probable	n.a.	12,104	12,141	12,196	11,862	16,965	16,005	15,836	15,789
Possible	n.a.	11,457	11,960	11,343	10,251	12,990	13,141	13,428	14,159
Production	n.a.	1,434	1,469	1,494	1,507	1,587	1,611	1,604	1,085
Proven reserves/production ratio (years)			24	22	21	13	12	11	10

Note: data reported as of January 1st each year. In 2003, PEMEX began using definitions of the US Securities and Exchange Commission (SEC)

Source: Secretary of Energy, Sistema de Informacion Energetica with data from PEMEX.

10. **The most promising areas for future oil discoveries imply higher production costs.** PEMEX faces new scenarios in which costs will go up from US\$4 per barrel to about US\$12 per barrel, in line with costs of deepwater production in the Gulf of Mexico and the more expensive geological structure in Chicontepec. Although investment in PEMEX has increased in recent years—from US\$5.1 billion in 1998 to US\$7.5 billion in 2000, and then to a record US\$10.8 billion in 2005—this amount is still inadequate to keep production at current levels. PEMEX’s outgoing CEO has warned that Mexico may need to invest US\$18 billion annually to meet future energy needs. Therefore, the country still has to escalate its investment, or provide incentives to attract the necessary funds into exploration and production, and at the same time it needs to guarantee the efficient use of the resources already committed in the sector.

11. **Even if the Government is able to commit the required investment in the oil sector, both international experts and PEMEX managers suggest that Mexico needs private capital and technology to operate in deepwater areas of the Gulf of Mexico.** Due to the sector’s legal structure, only PEMEX can invest in exploration and production. It is therefore necessary that Congress provides the legal framework and the necessary incentives to attract private investment, technology and managerial capabilities into exploration and production.

12. **In addition to declining reserves and rising costs, oil and gas consumption—including oil products—in Mexico is expected to grow faster than in other OECD countries during the next decades.**²⁴⁷ If this demand materializes, investment will have to expand at similar rates to cope with future demand. If proven petroleum reserves continue to decline, production could drop, which would then harm PEMEX’s capacity to pay current taxation levels and therefore reduce fiscal revenue. Also, if subsidies for energy consumption are maintained at present levels, they will be an incentive for higher energy demand and, at the same time, a burden for the Government finances that will limit Pemex’s capacity to provide the required investment to maintain acceptable levels of oil production.

13. **Although high oil prices have translated into more revenues for the Government in the short term, price volatility also highlights the need to consider the uncertainty about oil income in the long term.** Under present conditions, all associated risk of the petroleum market, in terms of price and supply volatility, is borne by the Government and affects the public finances. This uncertainty spells the need for a cautious fiscal management. While in past years, the practice has been to use part of the oil windfall for deficit reduction,

²⁴⁷ Energy Information Administration. *International Energy Outlook 2006*. June 2006, p. 18.

there is a need to plan fiscal expenditure on a conservative scenario, keeping excess of revenues in reserve to be used when eventual downturns could force reductions in public spending.²⁴⁸ On the other hand, price volatility raises issues on pricing of petroleum products. The practice has been to set prices to meet inflation targets—holding domestic refined products prices constant in real terms. However, as oil prices increase, fiscal revenues from domestic sales of petroleum fall and, in the event of growing imports, subsidies could also increase. Such was the case from November 2004 to September 2006. This situation illustrates the government’s high fiscal dependence on oil revenues and how price volatility impacts the fiscal balance. During that period, PEMEX was importing 27 percent of the domestic demand for gasoline, while local prices were 10 percent lower on average compared to the import price.

14. The downstream sector will also require closer attention by the Mexican government. The dynamic demand of refined products and environmental requirements for cleaner low sulfur fuels will require additional investment in refineries. Since the refining sector depends on PEMEX and the Treasury for investment, funding additional refining capacity is already an additional burden for the public finances. These problems are compounded by the quality of Mexican crude, composed largely of heavy oil, which contains more pollutants, requires a specific refining process, and sells at a discount to premium crudes.

15. Promoting regulatory policies that improve efficiency will be crucial to address these challenges and enhance Mexico’s competitiveness. Greater autonomy for the state-owned companies in the energy sector to act as commercial entities and exposure to actual competition can improve efficiency in the sector. To a large extent, the technical and operational efficiency of state-owned enterprises depend on the levels of spending approved by the Treasury and the Congress every year. However, beyond the spending constraints, PEMEX needs to make additional efforts to increase operational efficiency, lower costs and improve the quality of service. An example of this inefficiency is the number of employees at PEMEX. In 2004, the Mexican oil company employed 138,215 workers, operating in only one country, compared to Exxon Mobil (88,000 workers), BP (103,700 workers), or Shell (119,000 workers), each operating in more than 50 countries (*Petroleum Intelligence Weekly’s Top 50 Oil Companies*).

16. The Government will have to consider the issue of energy security; even if Mexico’s problem turns out to be not so much physical interruption of supply but uncertainty over prices (oil, natural gas, refined products) because of growing imports. The question will be how to complement a wider policy of energy diversification and energy efficiency. The choice of fuels in the power sector promotes a greater participation of natural gas, creating the need for more imports. In this scenario, Mexico could benefit from further diversification. Also, the global emissions agenda will impose commitments that the Mexican government will have to face with the limitations inherent in the current structure of the sector. A strategic approach to energy supply, including the role of renewable energy and demand side measures, should be followed in order to protect the economy from price volatility and for Mexico to comply with its climate change objectives.

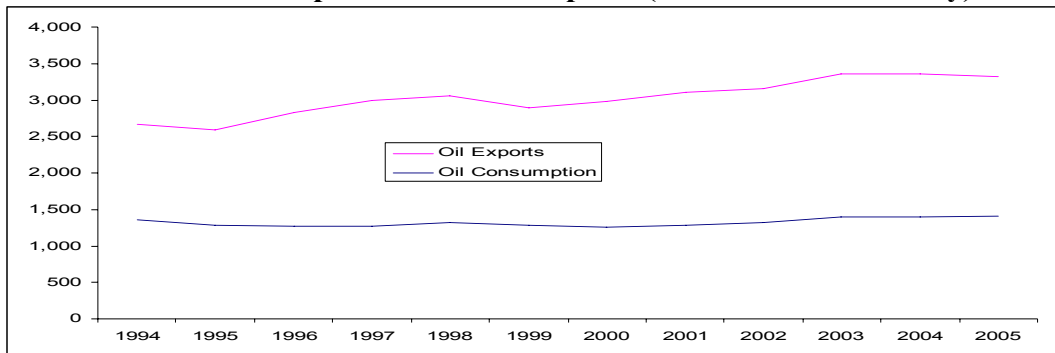
²⁴⁸ Chapter 2 provides a discussion of these fiscal issues.

Petroleum

17. **Over the past six years, the Mexican government made a strong commitment to improve the hydrocarbons sector performance, to ramp up investment, and guarantee both supply and availability of fuels.** As a result of this effort, in 2005 PEMEX ranked as the ninth largest integrated oil company in the world and Mexico was the sixth-largest oil producer (including crude, lease condensate, natural gas liquids, and refinery gain) in the world, behind Saudi Arabia, Russia, the US, Iran and China.

18. **According to PEMEX, Mexico had 13.7 billion barrels of proven oil reserves—including gas liquids—and 14.5 trillion cubic feet of proved natural gas reserves at the beginning of 2006.** However, proven oil and gas reserves have declined in recent years. At the same time, oil production has increased to historical highs. The decline in reserves has been largely the result of adopting international definitions of proven reserves (as in the revision of 2002 in which PEMEX began using the methodology of the US Securities and Exchange Commission) as well as a consequence of extraction with insufficient new exploration. The ratio of proven reserves to annual production fell from about 15 years in 2002 to 10 years in January 2006, while the proven plus probable reserves to production ratio fell from 26 ½ years of production to 21 ½ years (Table 1). Increasing exploration therefore is a high priority for the company, but it faces technological, investment and human resource capabilities challenges.

Chart 3. Oil Exports and Consumption (thousand barrels daily)



Source: PEMEX Statistical Yearbook 2006.

19. **Exports of crude oil in 2005 reached 1,817 thousand barrels daily or 54 percent of daily production.** Export volumes have grown by an average 2.7 percent since 2000, staying over 50 percent of total production during the last decade (Chart 3). The rest of oil production goes into refineries and petrochemical plants, with a smaller amount being exported under external processing agreements (Table 2). However, domestic consumption of oil products has also increased, creating a growing flow of imports. In the event of stagnant oil production (the International Energy Outlook 2005 forecasts that Mexico's oil production will increase slightly to 3.9 mbd in 2010 before initiating a long decline to 3.4 mbd in 2030), a rising demand for products would imply a fall in net exports of crude oil and products, which will widen Mexico's current account deficit and, in case price controls are maintained, could severely impact the fiscal balance.

**Table 2. Oil Supply/Demand Balance for 1994-2005
(thousand barrels daily)**

Year	Production of crude	Supply of Crude to		Imports of Refined Products	Volume of Oil Products Sales
		Domestic Refining	Exports of Crude		
1994	2,685	1,152	1,307	189	1,555
1995	2,617	1,074	1,305	140	1,434
1996	2,858	1,069	1,544	177	1,482
1997	3,022	1,073	1,721	299	1,574
1998	3,070	1,155	1,735	334	1,651
1999	2,906	1,132	1,554	325	1,659
2000	3,012	1,127	1,604	363	1,729
2001	3,127	1,140	1,756	335	1,713
2002	3,177	1,172	1,705	244	1,660
2003	3,371	1,246	1,844	200	1,685
2004	3,383	1,258	1,870	234	1,719
2005	3,333	1,275	1,817	334	1,772

Source: Secretaria de Energia, Sistema de Informacion Energetica.

Note: Oil Products include LPG.

20. **An early warning about future production came in December 2005,²⁴⁹ when PEMEX announced its estimates for Cantarell's production for 2006 at approximately 1.905 mbd, which is 6 percent lower than 2005 production of 2.032 mbd.** For 2007 and 2008, production projections are 1.683 and 1.430 mbd respectively, representing annual reductions of 11 and 15 percent. Although PEMEX has also announced it has offshore and land projects lined up to compensate this decline, the company has also made these conditional to getting appropriate investment amounts. According to some estimates, by 2015 output from Cantarell could fall by over 1 mbd.²⁵⁰ If no new developments were to offset the loss of production from Cantarell, production could fall from 3.3 mbd in 2005 to about 2.5 mbd by 2010, which would reduce the oil available for exports with the consequent fall in export earnings and result in an enormous pressure on the public finances.

21. **New prospective areas offer higher cost for extraction, going from US\$3.59 per barrel in Cantarell to US\$8-10 per barrel in Chicontepec and US\$12.5 per barrel in deep water.** As a consequence, investment requirements have been revised upwards. According to recent statements from the company's CEO, PEMEX alone will need US\$18 billion per year in the next ten years,²⁵¹ compared to expenditures of US\$10 billion in recent years. Raising this amount will be a challenging task and achieving this goal would drive a huge amount of resources to the hydrocarbon sector alone. In 2005, the Government's total investment (programmatic expenditure plus off-balance sheet expenditures) was about US\$33 billion, which is about 20 percent of Federal Government's total fiscal revenues for 2005. Out of this amount, PEMEX received US\$10 billion.²⁵² In the last six years, the Mexican

²⁴⁹ "Cantarell Complex", December 31, 2005 is available at <www.pemex.com>.

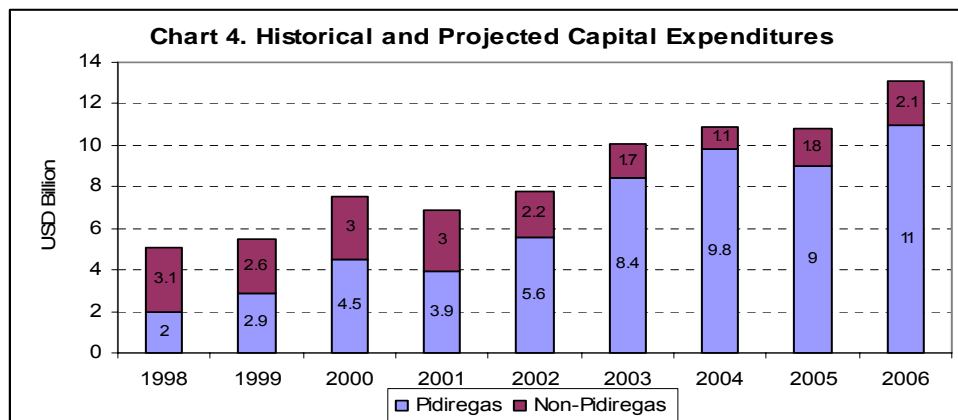
²⁵⁰ "Mexico: A Shrinking Giant." *Petroleum Economist*, March 2005.

²⁵¹ "Se agoto Cantarell; urgen 18 mil mdd al año: PEMEX". *Milenio*, Mexico, August 11, 2006.

²⁵² SHCP, "Informe sobre la situacion economica, las finanzas publicas y la deuda publica." Fourth Quarter of 2005 available at <www.shcp.gob.mx>. [Estimates were made using an exchange rate of Mx\$10.63 to a US dollar, which was the official exchange rate on December 31, 2005].

government increased its investment in both energy and social programs (in 2002 the Government financed about US\$5 billion investment in 2002) which reflects the growing need to address these issues. In the future, any increase in the allocation for the investment in the energy sector will entail a choice as to what extent oil rents could be used to finance high-priority social programs and other spending priorities at the federal level or to finance increased oil production.

22. **Financing exploration and development to increase oil output raises issues on sustainability of the present investment model for the oil and gas sectors.** Although PEMEX budget is insufficient to meet the growing demand for oil and gas, it is the largest budget among state-owned companies (e.g. PEMEX budget was US\$9.5 billion in 2004, compared to PDVSA’s US\$6 billion in that same year).²⁵³ To finance these capital expenditures, the Government has turned to financed long-term financing mechanisms known as PIDIREGAS²⁵⁴ (Chart 4). PEMEX holds about 80 percent of the total liabilities from this kind of project, the rest belonging to projects of the state-owned electricity company, CFE. In addition, as a proportion of total capital expenditures, PIDIREGAS increased from close to 40 percent in 1998 to over 80 percent in 2005. PIDIREGAS increasingly occupy space in the federal budget. According to the SHCP, this scheme of infrastructure investment financing is already dry: “We do not only need to face amortization, but also (PIDIREGAS) are pressing public expenditure; in the future, PIDIREGAS are not going to give additional expenditure space...PIDIREGAS are in a stage of ‘bankruptcy’ and cannot be further exploited.”²⁵⁵ In this case of limited financed investment, the only source left will be the Government’s own budget, which is already committed to increased social spending. Otherwise, Congress will have to find some way to allow for private investment in the sector to alleviate the burden on public finances and radically improve the sector’s efficiency levels. The other alternative is a tax reform that would disentangle the oil company’s finances from the general government’s finances.



Note: Pidiregas are long-term productive infrastructure projects; non-Pidiregas, budgetary investment.
 Data for 2005 and 2006 is preliminary and subject to approval by the Ministry of Finance.
 Source: PEMEX, www.pemex.com.

²⁵³ Rach, “PEMEX Sets the Course for Mexican Drilling.” *Oil and Gas Journal*, Feb 2, 2005; 102, 5; p. 45.

²⁵⁴ PIDIREGAS are also discussed in the public finance section of Chapter 2.

²⁵⁵ Quoted by Samaniego-Breach, 2005, p. 29.

23. **In order to face the challenges of the oil and gas sector, the Government and Congress need to assume some critical decisions.** In particular, the redefinition of the role of PEMEX will have to be a central policy topic. Up to the present, the oil company has functioned as an instrument of the Executive rather than as a commercial company. The Mexican Congress, however, has the power to decide whether PEMEX: (i) continues to contribute as it has done to the Federal budget; (ii) continues as the only entity in charge of exploration and production activities, refining, petrochemical and gas processing; (iii) reduces its participation to exploration and production; and/or (iv) evolves into an additional player in the oil industry in Mexico. Any decision will require an adequate taxation system that provides the right incentives for PEMEX to maximize its contribution to the economy.

24. **Establishing a modern tax system offers a complicated challenge.** At the beginning of 2006, a new fiscal regime for the oil and gas industry regulates PEMEX duties to the Treasury. The fiscal regime for the oil company has emphasized charging high royalties²⁵⁶ on gross production. PEMEX therefore was required to transfer at least 60.8 percent of its total sales to the Treasury. As a result, the upstream side in effect transferred profits to pay for the same rate of taxation in the downstream side. This removed the resources necessary for exploration and investment, repair and maintenance, which has resulted in a crushing debt. According to its 2005 financial statement, PEMEX held US\$99.2 billion in total liabilities and US\$96.7 billion in total assets.

25. **The new tax regime has divided the upstream and downstream sides for fiscal purposes.** A new Federal Rights Law (*Ley Federal de Derechos*) will govern exploration and production, and the annual Income Law (*Ley de Ingresos de la Federacion*) will continue to rule the tax regime of all the other activities. The Federal Rights Law includes a variable tax rate (varying from 78.68-87.81 percent) levied on the value of production (depending on the average export price for the Mexican basket); a windfall tax for the oil revenues stabilization fund (1-10 percent of production) to be charged when the price of oil exceeds US\$22 per barrel (which will certainly be charged at present prices); an extraordinary tax on oil exports (13 percent of realized value over a reference price); and small payments to fund technological research on energy and fiscal monitoring of oil activities. On the downstream side, the new legislation sets profits as the tax base and the taxation rate is comparable to other industrial activities. Under the new fiscal regime, PEMEX can also deduct costs of maintenance, some investments, costs and expenses and other duties. According to officials from the company, this new regime could increase reserves and improve its financial standing.²⁵⁷ Nine months after this new fiscal regime began, PEMEX has published in its financial results report that it has paid US\$41,379 million in taxes and duties out of US\$73,441 million total sales, which is equivalent to a 56 percent fiscal burden. This is a slight improvement from 2005, when the company paid US\$53,873 million in taxes and duties out of US\$86,163 million total sales, or a 62.5 percent fiscal burden.²⁵⁸ Although the new fiscal regime is an improvement over the previous situation, it is still insufficient to solve PEMEX's investment needs and growing liabilities.

²⁵⁶ Derechos ordinarios y extraordinarios sobre la extraccion de petroleo.

²⁵⁷ Suarez-Coppel and Yepez, "Mexico adopts new tax structure for oil, gas exploration, production". *Oil and Gas Journal*, June 5, 2006.

²⁵⁸ PEMEX Financial Results Report available at: www.pemex.com

26. **The new fiscal regime still has to come closer to international practice.** Evaluation of the new fiscal regime will have to take into account its success to preserve and increase state oil tax revenues, provide clear incentives to invest efficiently in new projects, and maximize economic yield of existing fields on terms comparable to those found elsewhere in the world. The Government and Congress should consider that charging royalty rates of 78 to 87 percent damages the company's finances and does not provide the right incentives to maximize reserves. Also, it should be taken into consideration that royalties are not the only mechanism to maximize fiscal revenues. For instance, Canada, Chile, Colombia, and Norway register a Government take for oil of around 70 percent, while charging the industry with effective royalty rates of 8, 7, 27 and 0 percent respectively.²⁵⁹

Natural Gas

27. **Despite the fact that Mexico has the sixth-largest gas reserves in the Western Hemisphere (after USA, Venezuela, Canada, Argentina and Bolivia), the country imports 15-20 percent of its domestic demand.** These imports are mainly supplied by the US natural gas market, one of the most volatile of the world. Over the last decade the domestic demand for natural gas (growing at an annual rate of 5.9 percent) has outpaced the national production due mainly to the gradual installation/construction of natural gas based electricity generating plants and by the liberalization of gas transport and distribution (Table 3). At present, production is largely associated gas, although there are substantial reserves of non-associated gas.

Table 3. Natural Gas Production and Consumption 1994-2004

Year	Total		Imports of Natural Gas (MMcfd)	Exports of Natural Gas (MMcfd)
	Production of Natural Gas (MMcfd)	Consumption of Natural Gas (MMcfd)		
1994	3,131	3,221	125	19
1995	3,180	3,335	173	21
1996	3,545	3,594	84	36
1997	3,726	3,760	109	37
1998	4,004	4,060	151	32
1999	4,039	3,993	168	136
2000	4,091	4,326	281	24
2001	4,074	4,358	380	25
2002	4,134	4,855	729	4
2003	4,326	5,287	995	0
2004	4,626	5,722	1124	0

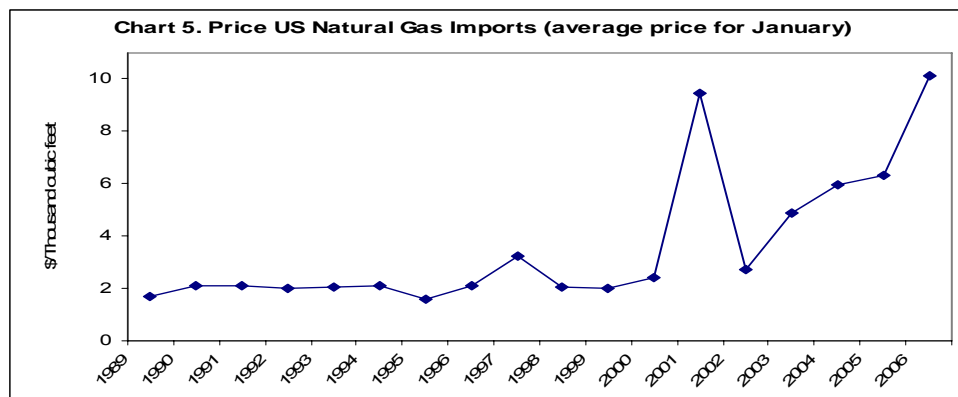
Source: Secretaria de Energia, *Prospectiva Gas Natural 2005-2014*.

Note: For balancing effects, this table takes into account only dry gas.

²⁵⁹ Johnston, *International Exploration Economics, Risk, and Contract Analysis*. 2003, p. 62.

28. **The rapid increase in demand, coupled with only modest investment spending on supply, has led to a surge in imports from the United States as local markets have begun to develop.** Natural gas demand is expected to continue to grow rapidly over the next decade. The key drivers are electricity generation demand, environmental standards that require fuel oil-run industrial facilities in critical zones to convert to natural gas, and the build-out and operation of distribution systems throughout the country. Between 1999 and 2009 the share of natural gas in energy consumption is expected to increase rapidly, mainly from demand for thermal power generation, industrial use; and for distribution systems serving residential, commercial, and municipal users—which already exhibit the most dynamic growth rate.

29. **Domestic production, while projected to increase significantly, will not keep pace with demand.** According to the Secretary of Energy’s (SENER) latest projections,²⁶⁰ domestic demand of natural gas will increase at an annual rate of 5.2 percent in the next decade (9,493 MMcfd in 2014), while imports will grow at an annual rate of 9.5 percent (2,795 MMcfd in 20014). SENER estimates also that production could rise from current levels (4,817 MMcfd in 2005) to 7,700 MMcfd in 2014, with an important recovery of exports, which could reach a little over 1,000 MMcfd in 2014 (this scenarios includes projections to add LNG to the natural gas supply, with three re-gasifying stations projected to start operations within the next years). Investment requirements for PEMEX, if the company is to achieve these objectives, amount to annual expenditures of Mx\$104.1 billion over the period 2005-2014. The deficit in domestic production already incorporates planned PEMEX investment in exploration, field development, and production facilities amounting to more than US\$85 billion over the next decade. Slightly less than a quarter of this sum is to be devoted to finding and exploiting non-associated gas reserves. These investment levels will still leave Mexico dependent on imports, which will also increase the country’s vulnerability to price volatility. As the evolution of prices of natural gas shows (Chart 5), Mexico should plan for higher and more volatile prices for this resource in the future.



Source: Energy Information Administration.

30. **The increasing dependence on natural gas imports and associated high prices led the outgoing administration to prioritize the implementation of a strategic plan aimed at increasing domestic natural gas production and reducing dependence on imports (Strategic Gas Plan).** The main objectives of this plan were to increase natural gas production

²⁶⁰ SENER, *Prospectiva del Mercado de Gas Natural 2005-2014*.

through Multiple Service Contracts (MSC); diversify natural gas supply import sources and increase LNG imports; reduce the flaring of associated natural gas; expand natural gas transport, distribution and storage facilities (strengthen interconnection capacity of pipeline grid with US); and allocate more exploration funding to increase proven reserves. However, at the end of 2006, almost all of these goals were either incomplete or still pending. In addition, the decision to diversify natural gas supply to reduce volatility associated to the US market, switching to LNG, is not exempt of risks or higher costs.

31. **MSCs were an attempt to increase non-associated gas production involving private companies.** The outcome, however, has been disappointing. No major oil companies have shown interest (with only Repsol and Petrobras participating in the first bidding round). Compounding this lack of interest, due above all to lack of incentives or risk sharing for private participants,²⁶¹ there has been continuous opposition from politicians and legal controversies against these contracts. In spite of the Supreme Court ruling in favor of the legality of these contracts, the MSCs highlight the problems of lack of competition, in which the Government has to provide all the investment or guarantee financed projects. In addition, the monopolist position of PEMEX tends to discourage private participation in the absence of a proper regulatory structure with clear rules for competition.

32. **Natural gas prices in Mexico have increased by 236 percent over the last six years and are among the highest prices in the world.** However, despite facing very high tariffs for natural gas imports in the world, during the last quarter of 2005 the established price was 77 percent of the actual market price (US\$10.17 per MMBtu).²⁶² On September 12th, 2005, with the high prices exhibited in the South of the United States (Houston Ship Channel Index) after the Katrina hurricane, the President of Mexico issued an emergency program that capped the price of natural gas at US\$7.65 per MMBtu for that month (more than 20 percent lower than the prices exhibited at the time). The intention of the President was “to protect families and the competitiveness of the productive industrial sector” (Diario Oficial de la Federacion, September 12, 2005). The opportunity cost of this subsidy to PEMEX was Mx\$4,348 million in 2005.

33. **Mexico’s downstream natural gas market has been open to private investors since the passage of the 1995 Natural Gas Law.** The constitution was modified to allow private companies to become involved in natural gas transportation, storage, and distribution. This has involved both the introduction of competition and the commitment of Mexican and international private sector capital. However, in practice there are still monopoly power issues in gas transport and marketing that impede efficient investment downstream.

34. **As of May 2005, the Regulatory Commission for Energy (CRE) reported 152 gas transport and distribution permits.** Permit-holders have pledged to invest US\$2.7 billion to develop the distribution networks. Out of these permits, 19 are transport permits for public sector projects, 112 for self-use and 21 for distribution. Permits for distribution entail

²⁶¹ MSC are contracts in which PEMEX retains property over all hydrocarbons and all the resulting assets. Contractors are paid a fee according to the contract approved in a bidding round. There are no incentives for efficiency or to increase productivity.

²⁶² PEMEX, *Audited Financial Results Report as of December 31, 2005*. May 3, 2006.

investment commitments of US\$674 million. The 11,316 kilometers of transport pipelines will have a capacity to deliver approximately 11.240 bcfd of dry gas. Much of that capacity will be used to supply gas for power generation, industrial processes, and to a lesser extent, distribution services in most major urban areas. In the category of self-use, CRE's transport permits represent 722 kilometers with capacity to conduct 5.439 bcfd. Distribution permits represent a commitment to invest US\$674 million to build 36,561 km of pipelines. This transport capacity seems enough to cover the estimated grow in consumption; however, investment commitments have to be realized and PEMEX's market power deal with in order to allow a sustainable development of this market.

35. Natural gas production (5,29 MMcfd in first three quarters of 2006) falls far short of SENER or PEMEX targets at the beginning of this administration (7.7 bcfd and 6 bcfd respectively). As consumption increases, the import bill will represent a growing burden for the public finances, especially if price controls continue in place. The natural gas sector, as well as the refining sector, illustrates some problems Mexico faces as an important consumer of energy. In recent years internal demand swallowed excess supply and led to growing imports. Increased reliance on imports exposed the domestic market to volatility, which prompted demands for Government coverage and subsidies.

36. The Government and Congress will have to design innovative solutions to address the lack of incentives for PEMEX to increase natural gas production despite having significant reserves. In other countries, competition and private investment are the backbone of dynamic gas sectors without the State losing ownership over its natural resources. In Norway, a Petroleum Directorate regulates the sector while Statoil competes with other private companies. In 2001, Norway's natural gas reserves were 77 trillion cubic feet, compared to 30.4 in Mexico. In the same year, 22 participants in Norway's natural gas sector invested US\$7.56 billion in production, while Mexico invested US\$200 million.²⁶³

Refining

36. Investment restrictions and concentration of scarce resources in the upstream have limited the expansion of the refining system in Mexico. Since 1996, PEMEX has resorted to upgrading the existing refineries. The aim of this effort has been to increase the amount of Maya crude processed to maximize revenues from the sales of sweeter crude on the international markets. Moreover, the administration of President Vicente Fox embraced this policy and continued with the reconfiguration program. The reality, however, is that despite this effort to increase the amount of heavy oil processed by the domestic refineries, the share of light crude has not diminished from its mid-1990's levels. In 1994, the proportion of light crude processed in domestic refineries was 53 percent of total; in 2004 that proportion was 58 percent.

37. Total demand for refined products has increased, giving way to growing imports as PEMEX has been unable to meet domestic consumption (Table 4). Domestic sales of

²⁶³ Jaime, Klein and Newell. "Los retos de la competitividad en Mexico. Una agenda de reformas inmediatas." Centro de Investigación para el Desarrollo A.C., 2001. Available online at: <<http://www.cidac.org/vnm/pdf/Los%20retos%20de%20la%20competitividad%20en%20Mexico.pdf>>

refined oil products has increased in the past decade, reaching 1.77 million barrels of oil equivalent daily (mboed) in 2005, but refining capacity has stagnated at around 1.50 mbd. Consumption of gasoline has been influenced by domestic sales of vehicles, which in the last ten years have increased at an average growth rate of 5.7 percent.²⁶⁴ As more stringent environmental requirements for gasolines have put pressure on PEMEX, imports of this fuel have almost doubled from 90 thousand barrels daily (tbd) in 2000 to 169 tbd in 2005. Also, as diesel vehicles are increasing their market share it is expected to result in larger imports of this fuel. Consumption of fuel oil, however, has declined and is expected to continue falling as power generators continued to switch to natural gas. Facing this scenario, PEMEX will continue to have difficulties in meeting future domestic consumption of oil products.

Table 4. PEMEX Domestic Sales of Oil Products and Imports (thousand of barrels daily)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total sales	1,555	1,434	1,482	1,574	1,651	1,659	1,729	1,713	1,660	1,685	1,719	1,772
LPG	255	255	265	278	287	312	330	325	332	327	328	314
Gasolines	503	481	483	500	513	513	533	552	567	602	637	673
Jet Fuel	52	47	47	48	53	56	56	56	54	54	58	59
Diesel	248	228	244	262	276	275	285	276	271	295	303	320
Fuel Oil	453	391	411	454	489	471	492	475	406	355	332	341
Others	44	33	31	31	32	33	33	29	30	53	61	66
Imports	188.75	139.52	177.33	298.65	334.31	325.26	363.21	335.31	243.64	199.85	234.19	333.72
LPG	31.29	37.23	53.81	73.48	77.18	93.84	120.69	99.81	101.55	85.34	84.63	72.93
Gasolines	75.89	70.57	73.18	126.57	137.49	103.70	90.58	136.00	89.72	54.38	94.54	169.39
Jet Fuel	n.a.	n.a.	n.a.	n.a.	1.98	2.72	4.14	1.93	0.69	n.a.	n.a.	n.a.
Diesel	n.a.	1.08	10.35	18.33	19.42	27.48	27.67	6.69	17.22	3.93	2.94	21.36
Fuel Oil	81.25	30.36	39.95	80.11	91.15	93.13	116.47	85.21	16.41	18.59	17.75	26.43
Others	0.32	0.27	0.03	0.16	7.10	4.39	3.66	5.68	18.05	37.61	34.34	43.61

Source: Secretaría de Energía, Sistema de Información Energética con información de PEMEX.

38. **In order to face a growing demand for oil products, PEMEX continues to base its refining strategy on improving efficiency in the refining process, upgrading existing assets and more imports.** According to the strategic planning of the Energy Ministry (SENER), there are no provisions to add new refining capacity before 2014. Instead, reconfiguration will continue with two basic objectives: first, refine a larger proportion of heavy crude oil than lighter crude oil by 2010, and second improve fuels quality and increase environmental standards. The investment program for PEMEX requires an expenditure of MX\$ 131,232 billion over the period 2005-2014, of which a fuels quality project would consume 23.4 percent, a new refining train 19.2 percent and the rest would be dedicated to reconfiguration of existing assets.²⁶⁵ However, despite this investment program, domestic supply is expected to continue to be insufficient to meet domestic demand by around 111.5 thousand boed in 2014. In this scenario, imports will continue to add volatility to the domestic market and, if the current pricing policies continue and high oil prices remain, the resulting implicit subsidies will impose an additional burden on public finances.

39. **Mexican consumers have been protected from the steep oil rises on the international market in recent years.** Prices are set by the Ministry of Finance and are adjusted in line with inflation. In order to smooth out price fluctuations, excise fuel taxes are adjusted on a monthly basis. Between January 2004 and January 2005, regular and premium gasoline spot prices in the U.S. Gulf rose by 25 percent, against 4 percent for regular gasoline and 6 percent for super gasoline in Mexico. Only the price of LPG rose at about the same rate, 28 percent, but the increase in Mexico reflects more a gradual decrease in the LPG subsidy

²⁶⁴ SENER, Prospectiva de Petrolíferos 2005-2014, México 2006.

²⁶⁵ SENER, Prospectiva de Petrolíferos 2005-2015, México 2006.

than full pass through of international price increases to end users. Diesel prices are lower than gasoline prices; in addition, there is an extra subsidy to farmers for limited amounts of fuel, based on the size of farms and crops planted. The diesel subsidy program for farmers was launched in April 2003, at a cost of Mx\$ 2.0 billion (US\$187 million) in that year. Subsidies to fuel consumption to protect consumers from inflation hurt PEMEX as well as the government, even though excise taxes are adjusted for this purpose. In particular, applying this policy on imported fuels is proving to be very costly for PEMEX.²⁶⁶

40. Lack of adequate investment in refining capacity has characterized the refining sector in the last decade. Faced with a growing internal demand and forced to comply with tighter environmental standards, PEMEX has resorted to expanding imports of oil products. However, price controls could distort market signals, leading to inefficient decisions and growing subsidies. PEMEX control over the domestic market also limits the options to guarantee a timely and efficient supply of fuels.

Liquid Petroleum Gas (LPG)

41. Mexico has the highest domestic and commercial consumption per capita of LPG in the world and it is ranked fourth in the world in terms of the volume of demand. The country's consumption grew at about 2.8 percent per annum over the last decade, but—due to the gradual penetration of natural gas in the residential and service sectors—its demand has become unstable, and it is projected by SENER to increase at 1.4 percent per annum in the next eight years. More than 70 percent of Mexican households rely on LPG, distributed to the final user either in portable small tanks or through tank-trucks that supply directly to stationary tanks. Today Mexico imports about a quarter of LPG demand, in an international market characterized by high price volatility. Imports grew at a 9.6 percent rate over the last decade. PEMEX's LPG production reports a growth rate of 0.3 percent per annum.²⁶⁷ The volume of imports is therefore expected to increase.

42. Since February 2003, the LPG price has been determined by a Presidential decree, which will be in effect until December 2006. Under this decree, in 2005 price increases were controlled between 0.75 and 1.75 percent per month. For 2006, prices for final users will increase at a rate of 4 percent. In July 2004, PEMEX reported that the LPG price subsidy had cost the company Mx\$5 billion (US\$453 million) in the preceding three years. After hurricane Katrina, the government announced further subsidies to LPG and natural gas that were estimated to cost up to US\$850-880 million in 2005.²⁶⁸

43. Although the Mexican legislation allows private participation in the LPG market, PEMEX still has a monopoly over production of this fuel and wholesale marketing. The private sector, which is limited to Mexican citizens, participates in transportation, distribution and storage for retail marketing. However, these activities are highly concentrated in a limited number of participants. Almost half of the national consumption is distributed by 6 companies. This high concentration is explained by the entry barriers imposed by federal and

²⁶⁶ Bacon and Kojima, *Coping with Higher Oil Prices*, 2005.

²⁶⁷ SENER, *Prospectiva del Mercado de Gas Licuado de Petroleo 2005-2014*, Mexico 2005.

²⁶⁸ Bacon and Kojima, *Coping with Higher Oil Prices*, 2005.

local regulations.²⁶⁹ Imports are subject to permits, but PEMEX has in practice a monopoly over this activity as well. Regulation is the responsibility of SENER and the Energy Regulatory Commission, while prices are set by the Secretary of the Economy.

44. **SENER estimates that domestic demand of LPG will increase at an annual rate of 1.4 percent in the next decade, reaching 385.5 mbd in 2014.** Other fuels competing with LPG are natural gas in residential and service sectors, and with diesel in transportation. PEMEX has an investment plan for LPG that amounts to Mx\$4,177 billion for the period 2004-2014. This amount, however, is insufficient to cover domestic consumption and it is expected that 12 percent of demand will be covered by imports in 2014.²⁷⁰

Conclusions and recommendations

45. **The former administration made an effort to improve the investment allocation in the hydrocarbons sector and changed a historical trend of underinvestment. However, the level of resources devoted to the energy sector still falls short of covering future needs.** Mexico is the only country in the world that prohibits private participation in exploration and production of hydrocarbons, which implies that any additional investment has to come from the Government. This can only be done using either budget allocations or debt that affects the overall fiscal balance. The dramatic increase in PEMEX' debt during recent years highlights the need to find a new investment model that minimizes the impact on public finances.

46. **Conditions for an efficient management of the oil and gas sector should be, first, that the country's reserves should generate maximum wealth creation for society, and second, natural gas and oil products should be delivered to consumers in an efficient way to fuel economic growth.** The upstream sector requires additional investment if Mexico is to exploit its substantial reserves base and maximize state revenues. There is also an urgent need to develop natural gas, especially non-associated gas, particularly for power generation.

47. **Although the hydrocarbon sector continues to play a very important role in the economy and provides a major contribution to the Federal budget, there are warning signs that the current institutional arrangements and productions models are not sustainable.** The Government therefore should make policy decisions taking into account the trade-off between short term fiscal revenue requirements and the need for a sustainable hydrocarbon sector able to maximize its contribution to economic and social welfare in the long term. To this end, reforms to the institutional and fiscal structures that link PEMEX and Hacienda as well as measures to promote private sector participation in the industry are necessary. The Government and Congress should seek ways to attract private participation in order to help meet the financing challenges of the sector, introduce stronger efficiency incentives and mobilize state-of-the-art technology. The challenge for Mexico over the next 5 to 10 years will be to provide the institutional and legal environment necessary to encourage more private investment where bottlenecks may constrain or even slow economic activity.

²⁶⁹ Yopez García, *Política Regulatoria y Competencia en la distribución de gas licuado de Petróleo*. Competencia Económica en México. Comisión Federal de Competencia. Mexico 2004.

²⁷⁰ SENER, *Prospectiva del Mercado de Gas Licuado de Petróleo 2005-2014*, Mexico 2005.

Priority areas in this respect are the exploration and development of nonassociated gas and deepwater exploration for oil. Failure to attract investment and technology to the sector could lead to reductions in oil production, which could also have a major impact in Mexico's fiscal position as well as causing higher imports and an economic slowdown.

48. Petroleum products and natural gas account for nearly 90 percent of Mexico's total energy consumption. Without alternatives in the short term to dependence on hydrocarbons, planned investment in the sector will continue to be insufficient to meet expected future demand. This situation highlights the urgent need to address some pressing dilemmas of the downstream sector in Mexico.

- The role of PEMEX as a source of revenue for the Treasury forced the company to focus on production and export of crude oil, neglecting the development of natural gas fields and gas pipelines.
- Investment constraints in the Federal budget limited the addition of refining capacity in the last decade, which led to increasing imports of oil products to meet domestic demand and higher environmental standards.
- Price controls shield consumers from the recent rise in world oil prices, which can turn into an incentive for higher consumption, requiring even larger imports.
- The lack of competition in the sector hampers efficiency and damages competitiveness of the overall economy.
- Future policy decisions should consider alternatives that maximize hydrocarbon production and wealth creation, besides fiscal revenue. A new investment model should avoid imposing the largest burden of risk on the Government. Competition could be extended to refining, transport, storage and retail of natural gas and oil products, and prices should be allowed to provide clear market signals for competitive companies to make decisions based on economic principles. An option for this could be to give powers to CRE to regulate prices.

49. In case that a consensus on a far-reaching reform is absent, the Bank advises the Mexican government to promote greater accountability and transparency, and implement regulatory improvements as a way to enhance efficiency and quality of service delivery. The Government should look at other international experiences (such as Brazil or Norway) where it has been possible to advance corporate accountability of state-owned oil companies and increase production of oil and gas, while improving efficiency in the overall performance and management of the sector. Recommended measures are:

- The Government should consider formulating licensing policies in the upstream sector, through a stand-alone geophysical mapping agency. The agency in charge of licensing should have authority to set out and enforce contractual terms for all companies operating in the sector, including PEMEX.
- An instrument to achieve more transparency could be the implementation of a program for the evaluation of performance indicators for PEMEX. Official publication of performance indicators for PEMEX, as well as issuance of the regulations for the operation of the hydrocarbon sector could foster efficiency in the sector. These regulations should include: LP Gas regulation; agreement that establishes the regulation of first-hand sales of petroleum products; agreement that establishes the terms and contractual conditions of the delivery-receipt of petroleum products or basic

petrochemicals obtained as sub-products from the production of non-basic petrochemicals.

- Eventual recognition of greater autonomy for PEMEX should be accompanied by greater accountability. Another option for strengthening accountability and transparency is to consider the separation PEMEX gas from its corporate “holding” to permit it to act as a genuine gas company rather than an arm of a larger oil export company.
- The new government should continue strategies to modernize the oil industry including the transformation of large industrial complexes, and the introduction of incentives to increase efficiency and foster competition in the sector. In particular, Mexico should adopt international standards for project planning, management and development, as well as for service and product quality.

50. **Regulatory agencies should have the necessary power to ensure compliance from all players in the sector with health, safety and environmental standards.** Regulation in the sector has already improved through an agreement between the Federal Commission for Regulatory Improvement (COFEMER) and the SENER. The 2001 agreement includes measurements to modify regulatory frameworks and ensure transparent regulatory accounting and public disclosure. To some extent, the COFEMER agreement complements the CRE actions on regulatory accounting and oversight. An additional step could be the integration of an inter-institutional regulatory accounting working group comprised of all the regulatory agencies and companies in the sector to implement concrete measures that improve the sector efficiency.

51. **As an important energy consumer, Mexico should include the issue of energy security as a priority objective for future sector policies.** It is therefore recommended that the Government adopts a strategic approach to energy supply, including the value of fuel diversification, and the role of renewable energy, in order to protect the economy from price volatility or eventual shortages, and for Mexico to move towards compliance with future climate change objectives.

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Chapter 11: INFRASTRUCTURE FOR HUMAN WELFARE AND ECONOMIC GROWTH²⁷¹

Anna Wellenstein, Luis Alberto Andres and Angelica Nuñez

Mexico's infrastructure and housing sectors have shown improvements in a number of areas over the last six years, and there are segments where Mexico outperforms regional comparators. The number of new annual new housing units constructed has increased by over 40 percent, and road density, paved roads per worker and access to electricity services are all high by regional standards. There remain challenges, however, in terms of improving the quality of infrastructure and in closing gaps in access, especially in rural and indigenous communities. A reform program that focuses on seven areas is discussed in this note: (i) refocus public spending on areas that the private sector cannot finance; (ii) use incremental resources released to focus on maintenance and rehabilitation, strategic infrastructure bottlenecks and extension of basic services and housing for the poor; (iii) improve the design of investment programs through the budget process; (iv) increase private financing for infrastructure to leverage public resources; (v) revise the design of public sector credit enhancements for public-private partnerships; (vi) strengthen arms-length regulation of tariffs and service quality; and (vii) improve accountability and information on performance outcomes.

INTRODUCTION

1. Mexico's infrastructure and housing sectors are in transition as the country recognizes that better provision of these services is necessary to reduce poverty and inequality, accelerate economic growth, improve international competitiveness, and advance territorial integration. The process involves allocating investments more efficiently as well as generating additional resources through more effective institutional frameworks, enhanced service delivery, and adequate pricing policies. And it involves a break with the past, when rents accruing to the public sector for housing and infrastructure were often distributed primarily to assure political support for the governing party.

2. **Mexico has been spending a substantial amount of fiscal resources on infrastructure and housing, but the amount is not high by world standards.** In 2003, the Government of Mexico spent about 1.2 percent of gross domestic product (GDP) on infrastructure investment and maintenance (electricity, transport, water supply, and sanitation), and provided 0.7 percent of GDP on untargeted consumption subsidies for the electricity sector. In the same year, the Government also spent 0.11 percent of GDP in housing subsidies through the federal budget (an amount dwarfed by the off-budget implicit subsidies of the national housing funds).²⁷²

²⁷¹ The discussion of the electricity and transport sectors in this note draws largely from the *Mexico Infrastructure Public Expenditure Review*, World Bank (2005).

²⁷² Off-budget implicit subsidies from INFONAVIT and FOVISSSTE represent around 96% of total subsidies for housing. A recent study estimates that US\$ 239 million were allocated through implicit subsidies from INFONAVIT in 2005 for its

3. **The overall impact of this spending on the quality and coverage of services has been mixed.** Mexico has a reasonable level of infrastructure coverage relative to other countries in Latin America (as it should, given its comparable wealth) and some sectors - including rail and ports - perform reasonably well by international standards. Overall, however, the quality and reliability of infrastructure services are generally below what could be expected of an upper-middle-income country, and costs are sometimes high. This reduces the standard of living of Mexican citizens and impedes international competitiveness. Many poor Mexicans still lack access to basic services and adequate housing. Currently, only about 25 percent of the households earning less than four minimum salaries (70 percent of the total population) can access formal finished housing markets. The country spends almost double what the United States does on transport as a percentage of GDP, and prices of fuel and electricity in Mexico are among the highest in the world.

4. **Looking forward, present spending levels may be sufficient for Mexico to achieve universal coverage for safe water, sanitation and electricity, to modernize and complete its major transport corridors, and to improve the overall quality and reliability of service. But this will require substantially improved expenditure efficiency, a much more strategic use of the private sector, and better targeting of subsidies.** Maintaining current government spending levels on infrastructure at between 1 percent and 1.25 percent of GDP, Mexico would remain around the Latin America average in both infrastructure coverage and expenditures, but it would not reach the level of infrastructure per capita of the other OECD countries or faster-growing East Asian countries (such as Korea, which just a few decades ago trailed far behind Mexico in terms of infrastructure endowments).²⁷³ In terms of housing, more effective use of on-budget and off-budget subsidies could have a significant impact on the quality of and access to housing for lower income households. For Mexico to close the housing gap in the near term, increased fiscal resources will be needed.

5. **In many ways, Mexico is between two worlds and there are two worlds within Mexico.** Some infrastructure projects perform at the highest OECD standards, while infrastructure quality on average lags far behind these standards. Within Mexico, some states have high quality road networks and near universal access to basic services, while some rural municipalities have indicators that more resemble the poorer countries of Latin America. This note provides an overview of coverage, quality and efficiency of infrastructure and housing, reviews sectoral performance and presents a set of recommendations for reform. The note focuses on the transport, electricity and housing sectors, key areas for investment, both to address gaps in access for particular populations and for the impact of these sectors on growth and competitiveness. Water and sanitation services are also critical in this regard, but are addressed in a separate policy note on the broader water sector.

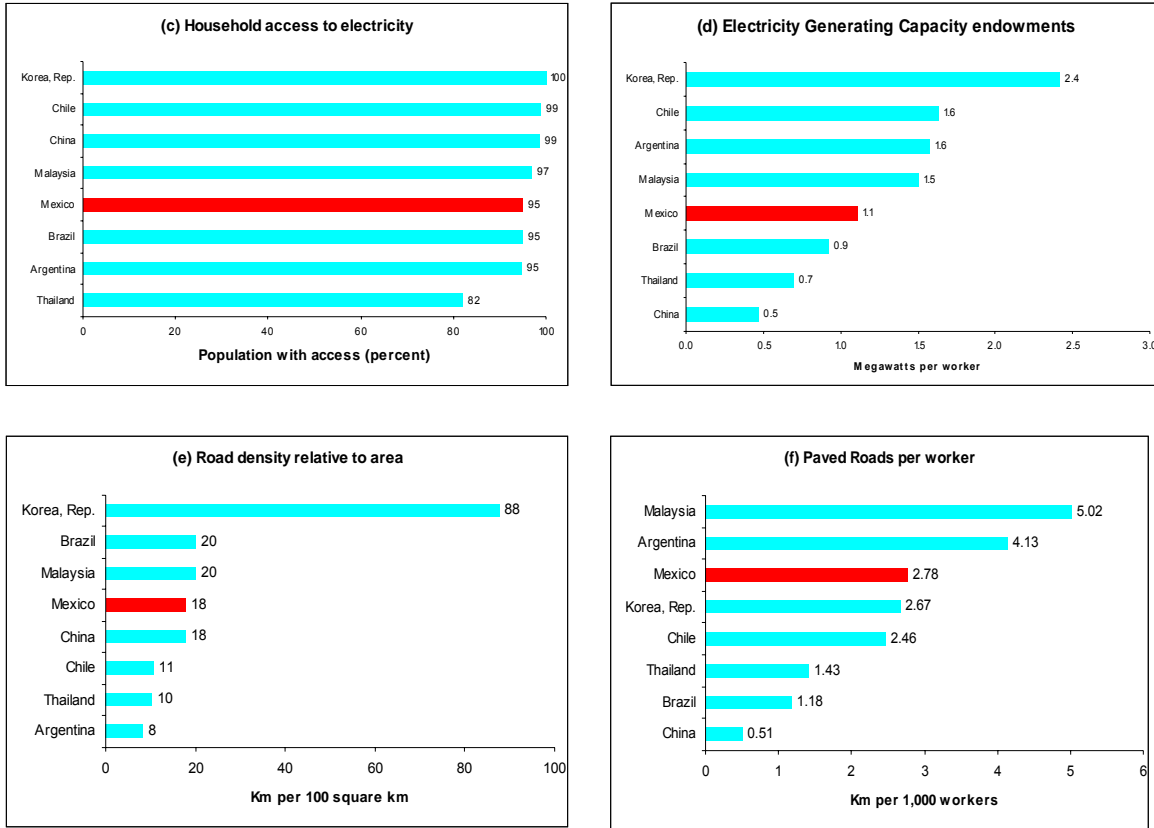
new loans that year, using INFONAVIT's break even rate of return as the comparator benchmark. Additional studies using market rates as reference, estimate implicit subsidies from INFONAVIT and FOVISSSTE in 2005 at as much as US\$ 2.5 billion on their total net outstanding debt.

²⁷³ In 1960 Korea had less than half Mexico's paved road density; today it has 11 times more. In 1969, Korea had one-third the power infrastructure per capita of Mexico; today it has about three times as much.

INFRASTRUCTURE SERVICES TODAY: COVERAGE, QUALITY, AND EFFICIENCY

6. **Mexico has made steady progress in increasing the coverage of electricity and roads over recent decades, reaching levels among the highest in Latin America (see Figure 1).** Household access to electricity services, at 95 percent is among the highest in the region. Road density and paved roads per worker surpass regional infrastructure leaders such as Chile.

Figure 1: Electricity and road coverage in Mexico among highest in the region



Source: World Development Indicators database, most recent available years

7. **There has also been a dramatic increase in new house construction during recent years.** Between 2002 and 2005, annual creation of new formal sector houses increased by over 42 percent, growing from about 480,000 units per year in 2000 to 680,000 units in 2005. The Fox government is likely to hit its target of 750,000 new units per year, approximately the rate of annual new household creation.²⁷⁴

8. **For productive infrastructure, the greatest challenges are to improve service quality and operating efficiency, rather than coverage.** Large industrial users ranked the average quality of Mexico’s infrastructure strong for Latin American but lagging some of the major East Asian economies in the World Economic Forum survey (2006). The gap was widest for the quality of electricity supply and the narrowest for ports and railroads (Table 1).

²⁷⁴ Source: Comisión Nacional de Vivienda, www.conafovi.gob.mx.

Table 1: Comparative Survey on the Quality of Infrastructure, 2006, Selected Countries

Country	Overall Infrastructure Quality*	Port Infrastructure Quality	Railroad Infrastructure Quality	Electricity Supply Quality
Argentina	3.35	3.41	2.28	4.00
Brazil	2.85	2.68	1.83	4.99
Chile	5.11	4.88	2.66	5.62
China	3.44	3.69	3.79	3.90
Colombia	2.80	2.90	1.36	4.72
Indonesia	2.53	2.44	2.43	3.47
Malaysia	5.68	5.75	5.04	5.79
Mexico	3.63	3.40	2.37	4.06
Philippines	2.67	2.70	1.68	4.02
Thailand	5.04	4.67	3.59	5.48
United States	6.08	5.69	5.11	6.26
Sample average	3.78	3.68	2.90	4.48

*“Overall infrastructure” includes quality indicators from other sectors not shown above (that is, air transport and information and communication technologies).

Note: Survey-based subjective evaluation on a scale from 1 – “underdeveloped and inefficient” to 7 – “as developed and efficient as the world’s best.”

Source: WEF (2006).

9. **However, gaps in infrastructure coverage and quality do persist in poor, rural, and indigenous communities.** While these gaps are not large in international terms, addressing them is important in Mexico’s drive to reduce poverty and promote equality and integration. Table 2 below shows that while coverage is high in urban areas, the situation in rural Mexico is very different. While 94 percent of the population in urban Mexico has access to improved water sources, only 76 percent do in rural areas, and among the extreme poor this drops to only 42 percent. Coverage is particularly low for indigenous communities, in which 17 percent of the population lack electricity and 35 percent lack access to an improved water source (World Bank, 2006b). Overall, people living in poor municipalities, regardless of their urban or rural characteristics, are less likely to have access. Table 3 shows that 14 percent of the population in the country’s poorest municipalities lack access to electricity, compared with less than 0.6 percent in the country’s wealthiest. For housing, the poor have not benefited proportionately from the recent expansion in new housing. The expanded provision of finished units has largely served the middle and upper income brackets. These finished mortgage financed units are not accessible for families earning less than 4 minimum salaries (70 percent of the total population).

Table 2: Household Indicators - Electricity, Water, Floor and Sanitation (1992-2004)

		National			Urban			Rural		
		1992	2002	2004	1992	2002	2004	1992	2002	2004
Electricity	Connected	92.4	98.0	98.7	98.5	99.5	99.5	76.2	93.5	95.8
	Not connected	7.6	2.0	1.3	1.5	0.5	0.5	23.8	6.5	4.2
Water	Improved water source	80.7	89.9	90.1	92.2	96.2	94.4	50.3	70.6	75.6
	Non-improved water source	19.3	10.1	9.9	7.8	3.8	5.6	49.7	29.4	24.4

Source: WB staff estimation using ENIGH surveys (several years).

Table 3: Access to Basic Services by Group of Municipalities (2000)

	I (poorest)	II	III	IV (richest)	Whole Sample
% of population without electricity	13.99	3.21	1.32	0.63	4.79
% of population without improved water	28.86	10.03	4.04	2.07	11.23
% of population without sanitation	26.72	9.33	2.49	1.06	9.89
% of population living in loc. with less than 5,000 inhab.	77.02	36.28	7.95	2.75	30.97
Total Population	24.3M	24.3M	24.0M	24.7M	97.4M
# Municipalities	1,553	669	132	56	2,410

Note: Authors' elaboration based on Conapo information at municipal level. Percentages were weighted by population in the municipality.

Electricity

10. **The service quality of Mexico's main electricity provider, the *Comisión Federal de Electricidad* (National Electric Company, CFE), has improved but still lags behind international standards and client expectations.** For annual interruptions and distribution losses CFE's performance is poor and rated by business as lagging compared to the major Latin American economies (see Table 4 and Figure 2), and the service quality and operating efficiency of the other electricity provider, *Luz y Fuerza del Centro* (LFC), are even worse.

Table 4: Quality of Electrical Service, 1995-2003

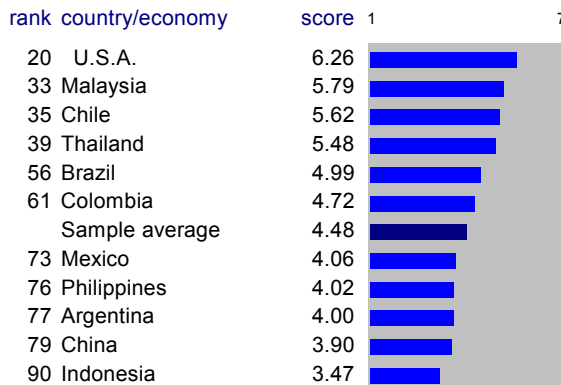
		1995	1998	2002	2003	2004	2005
Interruption of Service (min/customer)	CFE	242	225	124	120	89	
	LFC	—	374	144	135	119	113
Complaints (no./1,000 customers month)	CFE	14	10.7	4.2	4.1	3.8	3.9
	LFC	—	6.7	4.4	4.3	6.6	9.3
Connection time, new customers (days)	CFE	2.3	1.4	1.2	1.1	1.1	1.1
	LFC	—	10	5.5	6.0	6.1	6.3

Note: — = Not available.

Sources: Data provided by CFE's *Subdirección de Control Financiero*, and LFC's *Subdirección de Finanzas*.

Figure 2: Quality of Electricity Supply

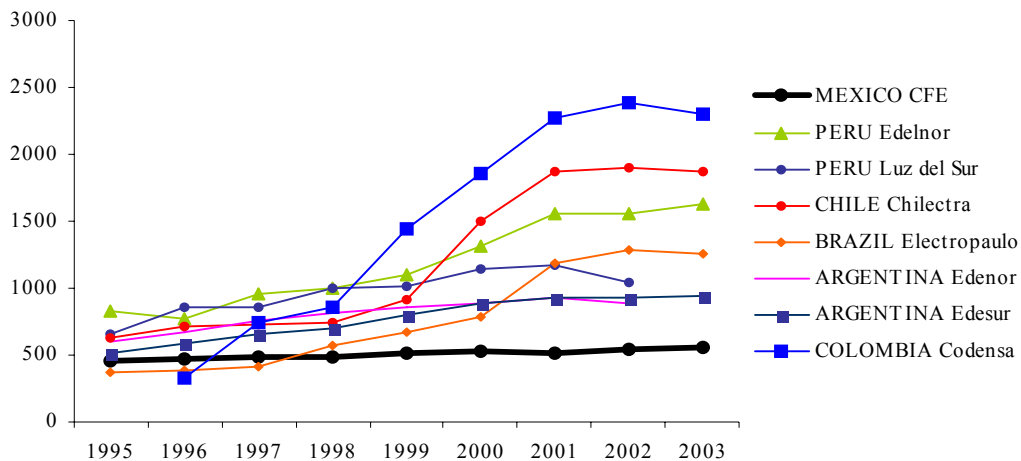
2.05 Quality of electricity supply



Source: WEF 2006

11. **Labor efficiency indicators for electricity in Mexico have also slightly improved, but remain below international benchmarks.** The total number of permanent employees (including *de confianza* [managerial and thus nonunionized] and *sindicalizados* [unionized]) has remained almost constant, while electricity demand and production have grown. When compared to selected Latin American privatized distribution companies, however, CFE has still performed poorly (Figure 3).

Figure 3: Number of Electricity Connections per Worker in Distribution Segment



Sources: CFE financial data; and Andres, Foster, and Guasch (2006).

12. **Access to electricity in Mexico has steadily increased over recent decades,** reaching levels significantly above the average for the region and other developing countries, with 95 percent of the population connected to the electricity grid (Table 5). This coverage expansion has favored the extreme poor and rural dwellers. For example, 90 percent of the extreme poor had access to electricity in 2002, up from only 63 percent in 1992 (World Bank, 2004a).

Table 5: Mexico's electricity coverage is comparatively high

National Coverage (%)	Mexico	Argentina	Brazil	Chile	Colombia	LAC Avg.	Philippines	Thailand	Indonesia
Electricity	95	95	95	99	93	88	80	82	53

Sources: World Bank (2004) East Asia report; data for Mexico in electricity coverage from INEGI (2002).

13. **Nevertheless, rural areas and indigenous communities remain underserved.** For example, electricity coverage in the predominantly rural Southern States (Chiapas, Guerrero, Oaxaca, Veracruz) reaches only half to two-thirds of settlements.²⁷⁵ Unelectrified localities are mainly small indigenous communities, generally living in extreme poverty, with populations below 1,000 inhabitants, located in remote rural areas.²⁷⁶ Addressing the low electricity coverage rate, especially in poor communities, is hampered by the current lack of appropriate mechanisms for extending access, such as a formal operational rural electrification program, which would consider off-grid solutions, rural economic development and sustainability issues.²⁷⁷

Transport

14. **In the transport sector, the need to improve quality is most evident for roads.** Under pressure from growing traffic volumes, Mexico's aging road network, particularly where run by states and municipalities, is in poor condition and badly in need of repair. Expenditure on maintenance falls far short of needs, often necessitating costly rehabilitation works. Urban areas face additional transport challenges as efforts to increase the coverage of urban roads and transport services are outpaced by motorization. In contrast, structural reforms in Mexico's railways and ports have permitted increased investment and improvements in the quality of service.

15. **As a result of insufficient spending on maintenance and modernization, the condition of many road assets is not satisfactory.** Many federal, state, and local roads are old and require either renovation or replacement, particularly with steadily increasing traffic. Road use has risen significantly over the last decade, with road transport by bus and truck currently accounting for 99 percent of domestic commercial passenger traffic and more than 78 percent of surface freight cargo. Following trucking deregulation in 1989, and the advent of the North American Free Trade Agreement (NAFTA), trucking activity has grown by 32.5 percent, and the authorized weight of vehicles was raised from 34 tons in 1960 to 66.5 tons in

²⁷⁵ There are still 2,600 localities of between 100 and 10,000 inhabitants without electricity in this region.

²⁷⁶ Initiatives led by the Indigenous People Development Commission focus exclusively on costly grid-extensions which favor communities with more than 1,000 inhabitants.

²⁷⁷ Sener is currently working with three southern states, as well as with World Bank and GEF support, to develop a pilot program along these lines.

1997.²⁷⁸ The number of personal vehicles (mostly cars) is growing at 7.6 percent per year, adding to the road infrastructure demand (World Bank, 2005).

16. **Considering 20 indicators of road quality—including operational standards, traffic, design features, security, and maintenance—only 61 percent of the highway system can be considered modern, with 39 percent requiring improvements.**²⁷⁹ Only one-quarter of roads are in good condition, well below the almost 60 percent average for other OECD countries²⁸⁰ (see Figure 4). Overall, the maintenance and improvement of main federal corridors, although showing a positive trend, still lag behind demand. State and municipally controlled roads are in particularly bad condition, especially in rural areas.²⁸¹

17. **Urban transport faces additional challenges due largely to Mexico's high level of urbanization** (around 70 percent) and the pressing demand for increased mobility associated with rising income levels. Motor vehicle ownership and use are growing faster than population, and are expected to continue to grow at 10 to 15 percent per year in the near term in key cities. The average distance traveled per vehicle is also increasing in all but the largest, most-congested cities. This growth exceeds the ability of cities to increase road space, resulting in congestion and a slowing of urban economies. Urban travel costs are high – representing 20 percent of daily expenses for low income people. Severe congestion, along with inadequate road design and poor traffic management contribute to the prevalence of road accidents, which are the fifth largest cause of death in Mexico.

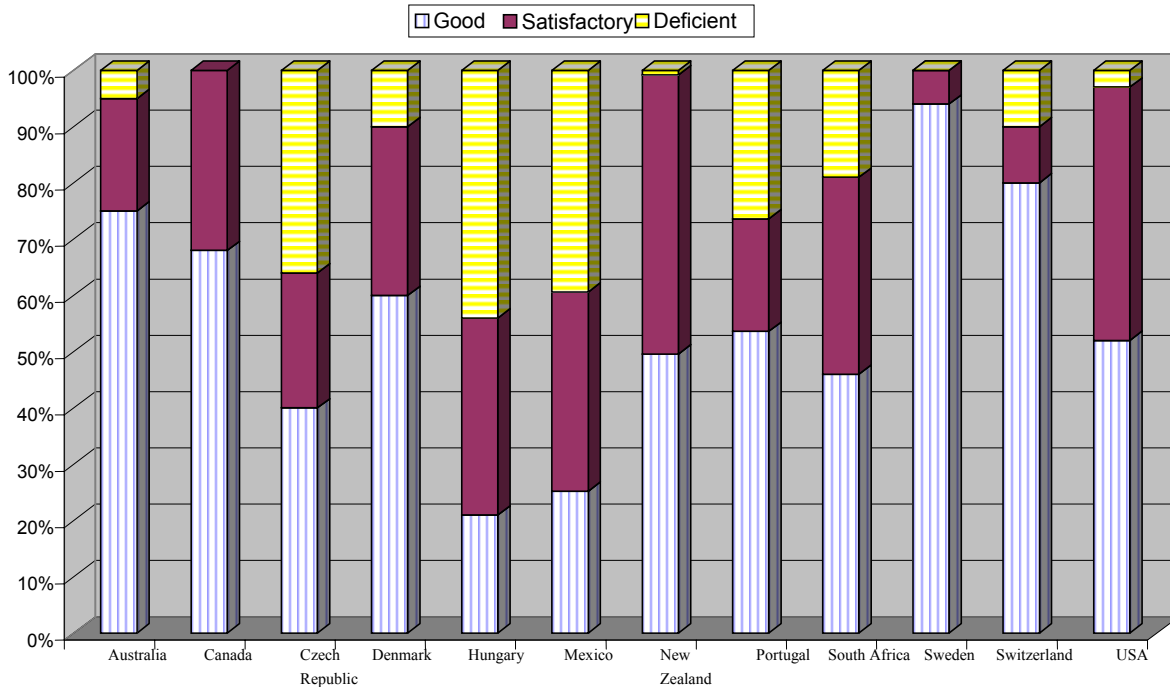
²⁷⁸ The trucking industry has a relatively aged fleet (17.5 years on average). In addition, the large number of owner-operators leads to inefficiencies and limits economies of scale, while at the same time providing only modest service quality and efficiency.

²⁷⁹ Communications and Transport Sector Program 2001–2006.

²⁸⁰ See Guerrero (2004). The source of data is the World Road Association (PIARC).

²⁸¹ There is very little data on the quality of roads at the subnational level, which might be symptomatic of larger issues of quality in the sector at that level.

Figure 4: Quality of the Road Network, 2000



Source: World Bank (2005) *Infrastructure Public Expenditure Review*.

18. **Weak institutional capacity exacerbates the situation.** Some cities have shown improvement in recent years, such as Leon and Ciudad Juarez where emphasis was placed on developing strong planning institutions and a cadre of experienced staff. Yet for the majority of cities, this capacity is lacking, specifically in terms of transport supply management (streets, etc.) and demand management (bus route licensing), where currently the latter is primarily the responsibility of the state government. Public transport services provided by the various operational entities are neither physically, operationally nor financially integrated, resulting in reduced system efficiency.

19. **Structural reforms, including privatization, have enhanced the quality and efficiency of service of Mexico's railroads and ports, which now perform reasonably well by international standards, but fall short of best practice.** The rail industry shows a diminishing number of accidents per kilometer, better use of assets (as shown by the higher number of tons per locomotive), improved service quality (as indicated by the lower number of losses and claims), and a more efficient use of fuel (Guerrero 2004). However, efficiency still falls short of levels achieved in the United States and other OECD countries. The port industry has posted significant increases in containers per ship transferred per hour, reducing the time ships need to stay in port. One problem for ports is the delays still experienced in moving cargo from terminal to rail or truck transportation. This is due not only to a shortage

of physical infrastructure in port terminals, but also to weak trade facilitation procedures and to sub-optimal management of logistics chains by users and agents.²⁸²

Housing

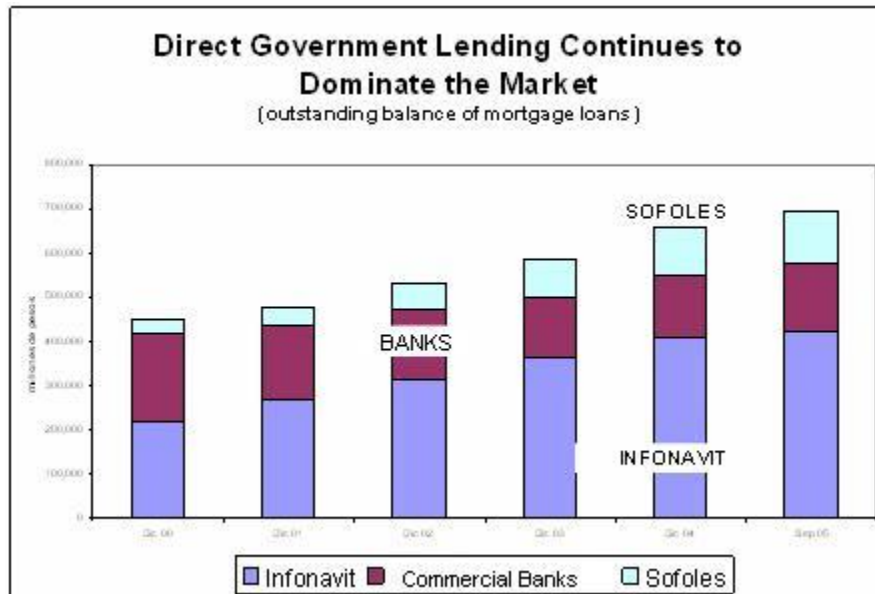
20. **The housing sector has seen major improvements over the last six years, providing efficient and increasingly competitive new housing to the middle and upper income segments.** The Fox administration will likely meet its goal of 750,000 units annually by 2006. However, the poor still face significant housing challenges, as much of the population lives in informal or precarious housing: of the estimated 22.2 million households in Mexico in 2000, 35 percent lived in overcrowded or substandard housing. Thirteen percent of houses lacked indoor plumbing, and 10 percent had roofs made of low quality materials. Rather than purchasing finished units and using debt financing to pay for the house, low-income households rely predominately on gradual and often informal self-construction paid for in cash from income and savings.

21. **Public and private lenders and subsidy providers together financed 678,343 housing units in 2005.** The 2005 results represent an impressive 42 percent growth over the number of loans and subsidies delivered in 2000. Though private sector housing finance is growing, the public institutions continue to fund the majority of housing. The system-wide mortgage portfolio grew 55 percent in pesos between 2000 and 2005, to reach 8.8 percent of GDP. This still remains small compared to other comparator countries (for example, 15 percent in Chile, 65 percent in the US and 45 percent in Portugal). The amount of outstanding loans from private specialized lenders, SOFOLs, grew as did Bank lending, though starting from a very small amount. Benefiting from operational reforms and legal advantages, INFONAVIT (a state owned provident housing fund) increased its dominance of the primary mortgage market, growing from 48.8 percent of outstanding balances in 2000 to 59.9 percent at the end of 2005 (see Figure 5).²⁸³

²⁸² For details, see *Diagnóstico General sobre la Plataforma Logística del Transporte de Carga en México*, Instituto Mexicano del Transporte, (2003, SCT).

²⁸³ Data on FOVISSSTE balances prior to 2005 are not available.

Figure 5:



Source: CONAVI

22. **Though improving, the formal housing finance system still does not meet the needs of poor households.** The vast majority of public and private sector financing targets those earning 7 minimum wages or more, representing the top quarter of the income distribution.²⁸⁴ Families earning three minimum wages or less have the most acute housing needs, most of which do not qualify for a mortgage loan. Of low income households, 80 percent work in the informal sector, leaving only 20 percent with access to the employment-linked, state-owned providential housing funds INFONAVIT and FOVISSSTE, the largest sources of mortgage finance. In 2005 INFONAVIT prioritized lending to households earning less than 4 minimum wages, which represent around 65 percent of their affiliates.²⁸⁵ Beyond the two housing funds, SOFOLES target both formal and informal households earning more than 7 monthly minimum wages (and as low as 5 minimum wages with the use of up-front subsidies), and commercial banks lend to formal sector employed households earning above 10 minimum wages.

23. **Government housing programs have focused almost exclusively on the production of new owner-occupied housing, leaving aside existing housing or rental housing.** While there are some programs for renovation, approximately 83 percent of credits finance the purchase of houses, most of which are single-family residences, as opposed to apartments. There are no programs to support the development of rental housing, which could be an important alternative for households with incomes too low to afford the maintenance of a unit that meets building standards. Residential rental markets are weak in

²⁸⁴ In Mexico, 27 percent of households earn 7 minimum wages or more. Source: INEGI.

²⁸⁵ Approximately 44 percent of FOVISSSTE member households earn less than 4 minimum wages. Though progress has been made, INFONAVIT products remain out of reach of many of its low-income affiliates. In 2005, in moving down market, INFONAVIT satisfied 3.4 percent of the demand of low income households, providing 145,133 mortgages with subsidized interest rates to individuals earning less than 4 monthly minimum wages. Source: INEGI, INFONAVIT, FOVISSSTE, with analysis by McKinsey & Co.

Mexico and suffer from tax bias in favor of owner occupied units. Current financing programs, in combination with long-standing problems with access to developable land, have contributed to suburban sprawl, increasing demand for expanding trunk infrastructure and increasing congestion and commuting times. Government programs need to be made neutral with respect to financing new or existing home purchases, as well as home improvement. At the same time, the government should continue its recent efforts to expand renovation of self-built and substandard housing by supporting housing microfinance loans, lease to own programs, and higher risk mortgage lending through cheaper SHF (and private) mortgage insurance products.

24. **Availability of urban land is a major bottleneck in the housing sector.** It is estimated that 24 percent of all households (3.5 million households) live on illegally occupied land. Household surveys undertaken in 31 low income settlements shows that 43 percent of households do not have formal property titles.²⁸⁶ Self-help housing is a key alternative for the poor, but urban land for it is largely excluded from formal land markets. Government interventions in this area have largely failed through unrealistically high zoning requirements and a concomitant failure to enforce these regulations. Market interventions that result in removing land from the market further limit supply. Other problems include inadequate and poorly planned provision of trunk infrastructure, weak local government capacity for strategic land-use planning, and cumbersome documentation and procedures for titling and registry. In addition, the regulations surrounding *ejido* land (lands under communal ownership) continue to contribute to land informality - as *ejido* land is informally converted from rural communal use to urban use - but the previously mentioned factors play an increasingly important role. The size and spatial distribution of the various types of informality in Mexico are not fully known, which makes this a significant issue for research to support the design of titling programs, along with up-to-date and accurate data on land markets as a basis for policy and programs.

25. **The growth of urban slums in Mexico reflects the failures in land and housing markets and related government programs.** The improvement of urban areas in Mexico, in particular those inhabited by the poor, have been supported by the social ministry's, SEDESOL's, Habitat program and FAIS (a budgetary category of *Ramo* 33) fiscal transfers.²⁸⁷ Through grants to municipalities, the Habitat Program focuses on introducing improvements to urban infrastructure in slums, together with the delivery of social services and community development actions to improve quality of life and better integrate the neighborhoods with the surrounding city.²⁸⁸ The Habitat Program is the only large scale, national urban upgrading program in Latin America²⁸⁹. Habitat's investments are better targeted to the poor than those of FAIS/*Ramo* 33, but the resources provided by FAIS/*Ramo*

²⁸⁶ Source. Secretaria de Desarrollo Social.

²⁸⁷ *Ramo* 33 is a budget allocation that aggregates all the earmarked transfers to subnational governments.

²⁸⁸ The Habitat Program has eight types of interventions: (i) social and community development; (ii) opportunities for women; (iii) security for women and their communities; (iv) urban upgrading; (v) urban and environmental initiatives and improvements; (vi) land for social housing and for urban development; (vii) urban planning and local development agencies; and (viii) urban equipment and image of the city.

²⁸⁹ IDB supports a similar program in Brazil. The Habitat-Brazil which has yet to be implemented on the same scale as Habitat. Additionally, Brazil never had a consistent national program of support to municipal infrastructure along the lines of FAIS/*Ramo* 33.

33 are much larger.²⁹⁰ While Habitat scaling up has been strong, more detailed evaluations would be important to strengthen the Program. Independent evaluations of Habitat have been general in nature and lack quantifiable information on results. Early evaluations point to the need for strengthening municipal capacity for planning and executing strategic investments directed to poor communities, to reduce political interference in the selection of investments, and to increase community participation in the design of projects. Based on the lessons learnt from other national slum upgrading programs (e.g. Thailand's Baan Mankong program or Indonesia's Kampung Improvement Program), there is a clear need to reorient and refocus Habitat into a comprehensive and long-term slum upgrading program.²⁹¹

INVESTMENT: HOW MUCH IS SPENT AND NEEDED

26. **Public investment in Mexico has fluctuated substantially with the federal political cycles, with peaks in years of Presidential elections (1994, 2000) and Congressional elections (1997, 2003), although the cycle is less clear after 2001.** Over and above the political cycle, public investment has increased some since the collapse that followed the 1994–95 crisis.

27. **Infrastructure investment has not kept pace with the noted increase in overall public investment.** In fact, the infrastructure share of public investment declined from about 39 percent to 28 percent (Table 6).²⁹² (PEMEX investments were increasing strongly.) Nevertheless, the absolute amount of resources invested in water and sanitation, transport and electricity increased from MxP64 billion (2003 pesos) in 1998 to MxP83 billion in 2003, or from 1.1 percent of GDP to 1.2 percent. The modest increase in public infrastructure investment is mainly attributed to roads and water supply and sanitation. In electricity, direct public investment declined, while quasi-public investment through *Proyectos de Impacto Diferido en el Registro de Gasto* (Projects with Deferred Impact in the Budget Registry, PIDIREGAS) increased until 2002, but dropped significantly in 2003.

²⁹⁰ The 2006 federal budget allocates MXP 25 billion for FAIS (*Fondo de Infraestructura Social Municipal*), in contrast, this same year the Hábitat program received MXP 2 billion. There is not data to compare allocation of resources, however to the extent that FAIS is spent throughout the municipality and Habitat is restricted to the poorest urban areas predefined by SEDESOL it can be assumed that it is better targeted.

²⁹¹ This may entail some form of titling; basic infrastructure, social sectors, public safety; and access to finance. Some elements of FONHAPO's subsidy programs that are directed towards the poorest like *Piso Firme* could also form part of this program as can other credit and subsidy programs for home improvement within slums.

²⁹² These estimates cover roads, ports, railroads, electricity, and water and sanitation. Schools, health infrastructure, urban transport, housing, airports, irrigation, and gas are examples of sectors that are not included in these estimates.

Table 6: Public Infrastructure Investment, 1998-2003

	Billion 2003 Mx Pesos	As a Share of Public Investment	As a Share of GDP
1998	64	39%	1.06%
1999	64	36%	1.02%
2000	69	31%	1.04%
2001	68	32%	1.02%
2002	84	34%	1.26%
2003	83	28%	1.23%

Source: World Bank calculations based on agency reports.

28. **In contrast, spending in the housing sector has increased over recent years.** Public and private investment in housing increased from (Mxp) 59,000 million in 2000 to 183,205 million in 2005, which represents an increase of almost 185 percent. Most of this investment has been directed to finance finished housing, the share of which has even increased from 93% of total housing finance in 2000 to 97 percent in 2005 and largely targeted households earning more than three minimum wages. In contrast, the relative share of investment in progressive housing or infrastructure (including land) - housing solutions that favor the lower income segments - has declined from 3 to 1 percent and from 0.4 to 0.1 percent respectively.²⁹³

Distribution of Spending

29. **Across infrastructure sectors, public spending is heavily weighted toward new construction and upgrading, while regular maintenance activities are underprovided.** In roads, federal maintenance expenditures have been insufficient to keep the network in good condition. In the electricity sector, the approved budgetary resources for maintenance, operation, and repair have been on average 30 percent below the amount requested by CFE. In water and sanitation, investment favors new construction, and insufficient maintenance affects the quality of service. This all points to substantial future investment requirements for rehabilitation, and highlights the need for better incentives and funding mechanisms to promote better management of existing assets.

30. **The Mexican Government does not calculate total public investment in infrastructure, but World Bank estimates in recent studies suggest that public spending on investment and maintenance in roads, water and sanitation, and electricity was around MxP 82 billion in 2003, about 1.2 percent of GDP.** This does not include the electricity subsidies, mentioned earlier, which are for consumption purposes, but it does include the quasi-public financing for the electricity sector done through the PIDIREGAS financing scheme. About half of this investment is for the electricity sector, and a quarter is for roads. The remainder is mostly for water, with a very small amount allocated to ports and rail.

²⁹³ Data from *Anexo Estadístico de Sexto Informe de Gobierno 2006*, along with data from CONAFOVI.

31. **Spending in housing is weighted toward the middle income segments.** The housing sector is dominated by the provision of finance for finished housing by public funds that provide more than 60 percent of housing finance through subsidized loans. The majority of the poor population is either not affiliated to these funds²⁹⁴ or does not benefit from them given their low income level.²⁹⁵ This results in a strong bias towards middle and higher income segments. The most important federal program for low income housing is the *Tu Casa* subsidy program, but this program remains small – representing around 12 percent of the total number of subsidies delivered (including implicit and explicit subsidies) during the first semester of 2006 - and has suffered from important operational constraints at local level.²⁹⁶ The expansion in recent years of investment in middle and higher income segments needs to be complemented with higher investment levels in low-income housing solutions, such as progressive housing and infrastructure financing.

Future Investment Needs

32. Making estimates of future investment needs is fraught with difficulties—it depends on sectoral goals in terms of quality and coverage, and requires assumptions about future prices and demand growth. Nevertheless, this note offers a series of estimates associated with different policy goals.

33. **By modestly increasing expenditures on maintenance and investment, Mexico should be able to improve the quality of its infrastructure and achieve some key policy goals (such as universal coverage in water and sanitation and electricity, and the completion of major road transport corridors).** Indeed, investment and maintenance needs estimated by Mexico’s infrastructure agencies (*Secretaría de Energía--SENER, Comisión Federal de Electricidad --CFE, Secretaría de Comunicaciones y Transportes --SCT, and Comisión Nacional del Agua--CNA*) for electricity, roads, water, and sanitation, respectively) are modest at around MxP 83 billion for 2006. Adding sufficient resources to adequately maintain networks and slightly accelerate the completion of major policy goals (such as universal coverage in water and sanitation and electricity) increases this estimate somewhat to about MxP 102 billion. Depending on GDP growth performance, this would represent 1 percent to 1.25 percent of GDP.

34. **Such a rate of spending, however, would not allow Mexico to reach the level of infrastructure per capita of other OECD countries or faster-growing East Asian countries.** Indeed, countries like the Republic of Korea, which trailed behind Mexico in terms of infrastructure coverage in the 1960s, invested over 3 percent of GDP per year on average in infrastructure over recent decades—as have China, Indonesia, Thailand, and other competitors that are catching up rapidly and surpassing Mexico in terms of infrastructure quality and coverage. This highlights the urgency of reallocating untargeted subsidies—such as the 0.7 percent of GDP currently spent on electricity consumption subsidies—toward

²⁹⁴ Estimates from recent studies suggest that only 24% of the population in need of housing (including improvements) is affiliated to INFONAVIT or FOVISSSTE.

²⁹⁵ The share of housing loans to below 2 MW households affiliated to INFONAVIT and FOVISSSTE during 2005 was 8% and less than 0% respectively.

²⁹⁶ During this period the *Tu Casa* program reported the highest number of subsidies delivered for comparative periods since the program was launched.

productive investment and maintenance, and of improving expenditure efficiency more generally. Moreover, responding to the need for increased resources and, most important, increased efficiency in the use of these resources, will require new and different uses of private sector participation and refined credit-enhancement schemes to attract financiers, investors, and operators to Mexico's infrastructure market in a more cost-effective manner.

35. Looking at individual infrastructure sectors, the primary financing challenge for the road sector will be to ensure adequate funding for rehabilitation and maintenance of the existing network. While the new concession scheme and public-private participation program (known as the PPS) could hope to leverage private investment in the highway program, current annual levels of financing will have to increase by 30 to 40 percent in order to fund maintenance and rehabilitation needs and bring all roads in the primary federal and state networks to fair-to-good condition. The expansion of multiyear, output based rehabilitation and maintenance contracts, which are bringing good financial results and increasing roads quality of service, would help achieve this goal in a cost-effective manner.

36. In other infrastructure sectors, a mix of improved efficiency of spending and additional resources could improve performance. For electricity, the challenge is to find new financing instruments that will mobilize large amounts of money, given the shortcomings of the current PIDIREGAS scheme and other structural constraints in the sector. In terms of housing a substantial increase in spending is called for to begin to address the needs of the lowest income segments and the housing demand backlog. Spending needs to shift toward supporting land, services and gradually constructed housing rather than the current focus on finished financed housing to middle income households.

TARIFFS, SUBSIDIES, AND COST RECOVERY

37. Mexico lacks a coherent national policy framework for setting—and linking—infrastructure tariffs, subsidies, and cost-recovery goals. An office in the SHCP Undersecretariat of Revenue sets the electricity tariffs.²⁹⁷ The office strives to follow technical considerations of the sector in setting the rates, but political factors loom large in the final determinations, and there is no multisector strategy to assure that an adequate package of safety-net programs are well targeted to the poor, and that the rates give appropriate incentives for conservation. Similarly, in the case of housing subsidies, the national housing council, CONAVI, is charged with housing policy including subsidies, in collaboration with FONHAPO. In practice a large amount of subsidies affecting the quality and quantity of housing come from off-budget sources (INFONAVIT and FOVISSSTE) and from urban programs (HABITAT and FAIS/*Ramo* 33), over which CONAVI has little control over the structure or targeting of assistance.

38. Pursuit of cost-recovery tariffs, which would reduce the strain on public finances and facilitate private participation, would be more feasible if subsidies were targeted to low-income groups. Moreover, although socially directed infrastructure tariffs and subsidies can contribute to poverty reduction, through expanding access to basic services and reducing charges, such subsidies are not usually the optimal way to help the poor. As more efficient

²⁹⁷ This same office sets the water abstraction charges owed by the local water operators and those enterprises drawing water from the source.

antipoverty programs, such as *Oportunidades*, widen their coverage, Mexico could consider phasing out generalized utility tariff subsidies (as they already did with food subsidies) and shift to poverty targeting cash transfers.²⁹⁸

39. **The absence of overarching subsidy policies —and the multiplicity of federal, state, and municipal stakeholders involved—produces a wide variation in the degree of cost recovery and subsidies across sectors and regions.** Tariffs are set well below costs for some areas and users—even those who could pay. The most common form of user subsidy in Mexico is through low tariffs for certain consumer categories in electricity, water supply, and sanitation. These are usually financed directly or indirectly from the federal budget, but some subsidies are funded by states and municipalities. One of the major subsidies—in electricity—is financed through the nonpayment of *aprovechamientos* (levies) due by CFE to the Federal Government. Subsidies through the *Fondo de Inversión en Infraestructura* (Infrastructure Investment Fund, FINFRA) are indirectly paid by the Federal Government in the form of foregone dividends for subordinated equity.

40. **Subsidies for infrastructure services absorb significant public resources in Mexico, encourage inefficient resource use, and do not effectively target the poor.** For example, subsidies (for operations and consumption) in the electricity sector amount to about 1.1 percent of GDP and are highly regressive. Federal programs in the electricity sectors disproportionately benefit richer states, municipalities, and households, for which improved cost recovery and tax revenue mobilization could easily finance part of their infrastructure. In the case of housing, the current subsidy system increases inequality; as low-income households and those employed in the informal sector receive little or no support while those employed in the formal sector with wages between 3 MW and 7 MW receive relatively high subsidies.

41. **The Mexican Government has incorporated a modest degree of poverty targeting in its transfers to subnational governments,** mostly through FAIS/*Ramo* 33. In 2002, 47 percent of the investments funded by FAIS were used in the electricity, water and sanitation and transport sectors. About half of it went to water and sewerage, with the remainder split equally between rural roads and electricity distribution to rural and marginal areas. However, the majority of federal infrastructure spending, subsidies, and transfers are not targeted for poverty reduction, and the distribution strongly favors the wealthier states and localities. Non-FAIS federal spending for water and sanitation in the wealthiest eight states in 2003 was two and a half times higher per capita than in the poorest eight states (Barocio 2005).

Electricity

42. **In electricity, average tariffs still fall short of covering costs, despite steady nominal increases over the past 15 years.** Substantial subsidies are applied in varying proportions to different categories of users. Tariffs for commercial and industrial users are set near levels allowing full recovery of the cost of supplying these consumers. However, average residential and agricultural tariffs covered only 42 percent and 28 percent of cost,

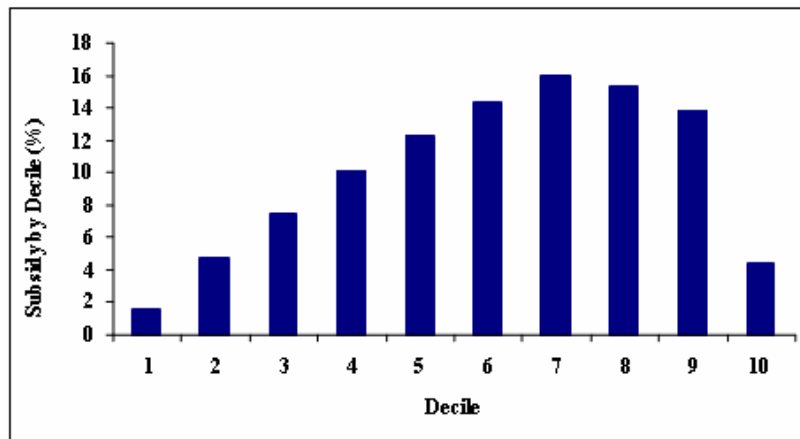
²⁹⁸ See Chapter 4 for more details on cash transfer programs.

respectively, during 1997–2003 period.²⁹⁹ The incidence of residential subsidies stemming from current tariff structures is regressive, benefiting mainly the upper-income households and richer states.

43. **Residential tariffs are well below the OECD average, while industrial tariffs are higher than the average of OECD countries and the United States.** Independent sources indicate that peak industrial electricity tariffs are more than four times higher than the costs of producing electricity on-site with diesel-based thermal plants.³⁰⁰ High industrial tariffs have led to an increasing trend toward self-supply by industries during peak hours. Compared with the electricity tariffs in other Latin American countries, commercial tariffs are among the highest tariffs in the region, while industrial and residential tariffs are close to the regional average.

44. **Residential electricity subsidies are highly regressive:** Upper middle income households (income deciles 6, 7, and 8), receive the majority of the consumption subsidy (see Figure 6). The electricity subsidies also go mostly to the more economically developed regions. The vast majority of the subsidy—over 90 percent—is not a lifeline for the poor and encourages inefficiency, especially in hot regions in the summer, which benefit from highly subsidized rates. Poverty criteria are absent in the determination of regional electricity tariffs. International evidence suggests that tariffs that are geographically differentiated on the basis of even crude assessments of marginality are mildly progressive. Meanwhile increasing-block tariffs,³⁰¹ which are common in Mexico and in many other developing countries, benefit mainly the better off because the middle blocks are also subsidized and non poor households tend to consume more than the poor.

Figure 6: Distribution of Electricity Subsidies by Household Decile



Source: World Bank (2005).

²⁹⁹ For 2005, cost recovery for residential and agricultural tariffs was 39 and 28 percent respectively, and 86 and 85 percent for commercial and industrial tariffs.

³⁰⁰ Instituto Tecnológico de Estudios Superiores de Monterrey (2004), quoted in World Bank (2005).

³⁰¹ With an increasing-block tariff, consumers face a low volumetric per-unit price up to a specified quantity (or block), and then for any amount consumed over this quantity, they pay a higher price up to the limit of the second block, and so on.

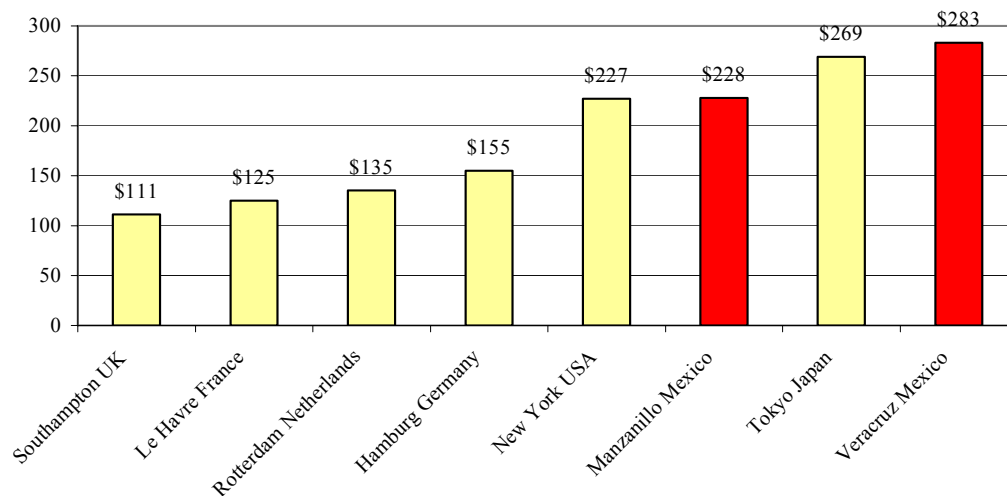
Transport

45. **Toll-road tariffs are high by international standards and despite reductions in the late 1990s, high fares have kept the use of many toll roads below capacity.** Estimates suggest that toll tariffs would have to be reduced significantly to have a real impact on traffic patterns. This is largely due to many free roads that compete with toll roads for freight and passenger traffic. After the substantial reductions of the 1990s—from 12 to 2 Mexican pesos per truck and kilometer in constant prices in the case of roads owned by *Fideicomiso de Apoyo al Rescate de Autopistas Concesionadas* (FARAC)—tariffs have been stable since 1998.

46. **Toll setting has been based mostly on financial needs, for which FARAC debt weighs heavily, rather than economic considerations which incorporate demand patterns and country competitiveness concerns.** The FARAC technical committee is currently looking at an overall review of toll levels and structure.³⁰² At major ports, which are commercial enterprises, and railways, which are largely privatized, charges cover the full costs of good-quality service, demonstrating that such models can work in Mexico.

47. **Costs for railway services are higher in Mexico than in Brazil or the United States, which is partly explained by cargo characteristics.** In the United States and Brazil, minerals account for a majority of the cargo that can be transported at a lower unit cost. In Mexico, due to the relatively low share of cheap bulk cargo and the scattered origin and destination patterns, train operation is necessarily more costly. Nevertheless, the lack of competition among concessionaires, due to the ineffectiveness of interchange rules and insufficient intermodal competition, also contribute to high tariff levels.

Figure 7: Post Tariff for a 2,800 Twenty-foot Equivalent Unit (TEU) Ship (thousand dollars)



Source: Instituto Mexicano para la Competitividad (2003).

³⁰² For an analysis of road toll-setting criteria, see R. Carruthers and R. Basu, "The Theoretical and Practical Basis for Setting Road Tolls," World Bank, Transport and Urban Development Department, 2004.

48. **Port tariffs are generally higher than international benchmarks when all charges are considered.** Tariffs for port infrastructure use include two main categories: charges to vessels and charges to cargo. International comparisons are of limited value, since these two concepts are not homogeneous across ports. Mexico charges low tariffs per transferred ton on ports (US\$1.4 in Veracruz compared with US\$6.68 in Los Angeles). However, tariffs are much higher when all charges are considered (like shore-to-terminal cargo handling or customs agent payments), as shown in Figure 7.

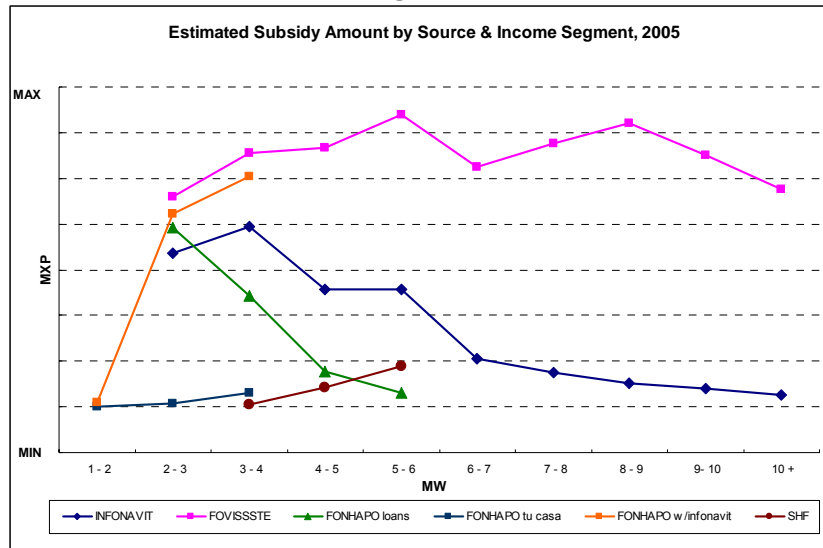
49. **In urban transport, there is no clear subsidy policy, although some subsidies have been provided for urban rail mass transit such as the Mexico City and Monterrey subway systems.** As systems modernize, the Government should assess the appropriateness of a rational subsidy policy. Sprawling urban metropolitan areas are making the journey to work excessively long and costly, particularly for many of the very poor. Surveys of commuters in Mexico City have shown that 20 percent of workers spend more than three hours traveling to and from work each day, and that 10 percent spend more than five hours. Poor people's inability to access jobs and services due to transport cost and time is an important element of the social exclusion that defines urban poverty. Urban transport policy can help relieve this poverty, both by contributing to economic growth and by introducing a conscious poverty focus to infrastructure investments, to public transport service planning, and to fare-subsidy and financing strategies.

Housing

50. **There has been considerable expansion in the provision of up-front housing subsidies during the past few years, reaching more than 300,000 households during the period 2000 to 2005.** During this period, INFONAVIT, improved its performance dramatically, allowing growth in its subsidized portfolio. Accordingly, the implicit interest rate subsidies provided by INFONAVIT and FOVISSSTE continue to dominate public support for housing, making up 96 percent of subsidies to the sector. The number of upfront, on-budget subsidies issued through FONHAPO decreased in recent years due to administrative hurdles, competition with higher and more efficient subsidies through INFONAVIT and the difficulty of obtaining local government counter-part funding (a component of the *Tu Casa* program). CONAVI estimates of the amount of subsidies per agency (prepared in coordination with other major housing agencies) are presented in Figure 8.³⁰³

³⁰³ The method for the calculation of the subsidy for implicit interest rate subsidies was the present value of the cashflow difference between interest rates charged by the agencies for different income groups and an SHF calculated risk adjusted market interest rate for that income group. More recently INFONAVIT has changed the method of calculating the subsidy it provides, focusing on its internal cross-subsidization of mortgage for different minimum wage levels and comparing interest rates charged to a theoretical base rate for the institution, which is based on its costs of funds and actual risks, rather than a market rate. This method dramatically lowers the amount of subsidy, but not the number of subsidies issued.

Figure 8:



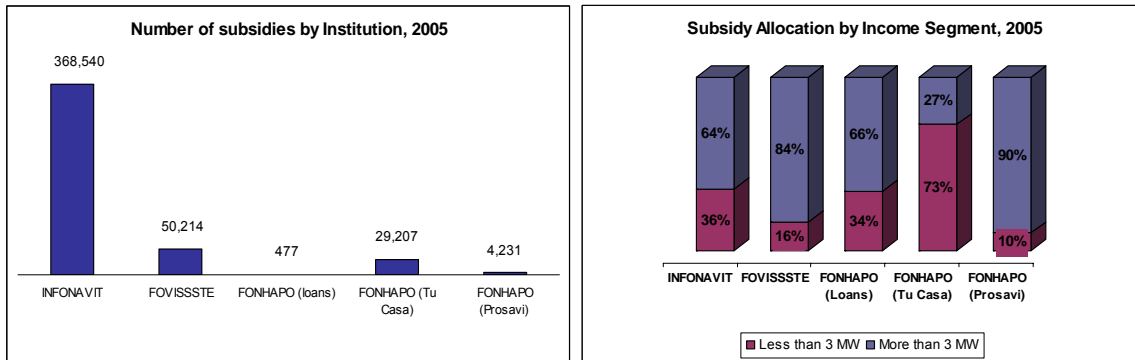
Source: Own calculation based on CONAVI data. Notes: Estimates are calculated using market rates as reference rates. Only federal subsidies are included. Data for Fonhapo /Tu Casa includes the up front grant plus the implicit interest rate subsidy.

51. **While subsidies have increased in recent years, on-budget expenditures continue well below what is needed to address the housing deficit.** The Federal Government spends about 0.11 percent of GDP on explicit housing subsidies targeted to low income households (i.e. excluding INFONAVIT and FOVISSSTE implicit subsidies). This is significantly less than the peak reached by Chile in the mid 1980s (1.3 percent of GDP), when it started its concerted and largely successful effort to eliminate its housing deficit. It is also lower than that of many countries in Western Europe. Moreover, the overall subsidy allocation is regressive. Given that INFONAVIT and FOVISSSTE provide interest rate subsidies linked to mortgage credits, subsidy allocation is in principle inequitable with amounts increasing with higher loan amounts (and likely incomes). INFONAVIT is compensating for this effect by increasing the interest rate for higher income brackets.³⁰⁴ Even so, only one third of all subsidies benefits households below 3 MW, whether in number of beneficiaries or in total amount of subsidy (see Figure 9).³⁰⁵ This outcome is related to the predominance of mortgage-linked subsidies for which low-income households do not qualify, and the focus on reaching Government's new housing goals rather than stimulating the more affordable resale market.

³⁰⁴ Current subsidized interest rates by income level are: 4% for 1 minimum wages, 5% for 2 minimum wages, 6% for 3 minimum wages, 8% for 4 minimum wages and 9% for 5 minimum wages and above. This latter rate is close to the current market rate for that income group.

³⁰⁵ In reality, this figure is slightly higher since the *Tu Casa* federal subsidy amount is only half of the total subsidy received by beneficiaries, since the other half comes from local government.

Figure 9:



Source: World Bank calculation with data from CONAVI

52. **Expanding access of the poor to housing will call for more than harmonization of subsidy amounts across income groups.** The next wave of reform should contemplate moving subsidies down market, by introducing new instruments (e.g. mortgage payment buy-downs and payments for part of the mortgage insurance premiums), linking subsidies to resale housing and serviced plots, and conditioning funding on land management reforms and facilitation of permitting procedures. Current on-budget resources are insufficient to address the problem and should be scaled up. Off-budget subsidies provided through INFONAVIT and FOVISSSTE should be aligned with government subsidies. Efforts are already underway to strengthen micro-credit for housing and improve savings options. The scaling up of a more competitive and affordable housing microfinance industry could be supported by Government – for example through SHF – without necessarily channeling subsidies immediately through this network. Implementing such reforms will require strengthening CONAVI and the discontinuation of lending from FONHAPO.

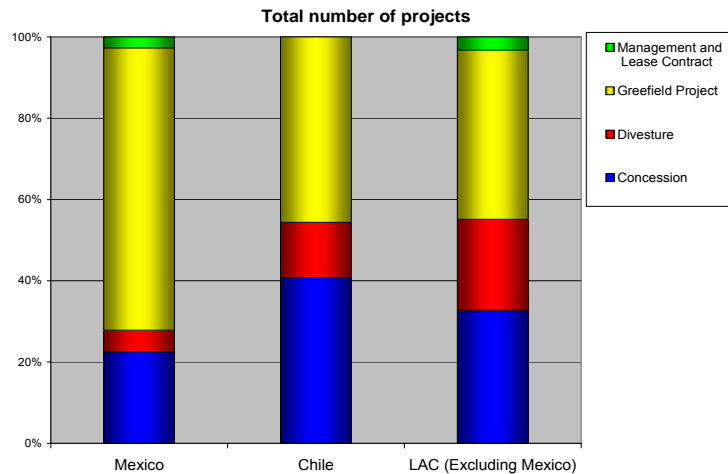
PRIVATE SECTOR PARTICIPATION—LIMITED AND COSTLY

53. **Since 1994 private sector participation and financing in transport, electricity, water, and sanitation in Mexico, while growing substantially over prior periods, remains lower than in its peers in Latin America** (Argentina, Brazil, Chile, and Colombia). Mexico was one of the first countries in Latin America to attract significant private participation in infrastructure (PPI), but after the collapse of the road-concession program in the early 1990s, PPI decreased and has remained modest since. Compared with other relevant countries, Mexico has not had significant private investment in energy and water distribution services. The energy sector (electricity generation through the PIDIREGAS) has attracted the most private financing, followed by transport, especially for railroads and airports.

54. **In addition, the approach to PPI in Mexico—particularly for the segments that provide service directly to retail consumers—has limited the efficiency gains that normally arise from private participation.** PPI in Mexico has mostly been in upstream, greenfield, activities such as electricity generation and highways. In contrast, in the rest of Latin America, PPI in roads, water and sanitation, and electricity has mostly taken the form of concessions or divestitures for *existing* infrastructure and expansion of networks to serve additional segments of the population (see Figure 10). Mexico’s lack of reform of existing

service providers has limited the efficiency gains that usually occur from involving the private sector in the operation of infrastructure services (improvements in commercial and technical efficiency). Moreover, PPI involvement has typically taken the form of “take-or-pay” agreements with substantial guarantees from the government. These implicit but costly forms of fiscal support have been necessary because private producers could not be enticed to sell their output to public utilities which were not, in and of themselves, financially viable purchasers or if creditworthy, were subject to government controls which raised the risk of lack of future payment capacity.

Figure 10: The share of PPI allocated to greenfield projects has been high in Mexico, 1990-2005



Sources: World Bank PPI Database; authors' calculations.

55. **This is all the more surprising given Mexico’s good sovereign risk and credit ratings, its macroeconomic stability and general success in attracting foreign direct investment, and the depth of local capital markets.** Indeed, Mexico is probably one of the few developing economies today that could fairly easily attract substantial amounts of private capital for infrastructure.³⁰⁶ The new private sector participation schemes being developed and implemented provide an opportunity to increase efficiency and reduce the scope of sovereign guarantees provided by the Federal government.

56. **Urban Transport in contrast has experienced more private involvement directly linked to users.** With the shift towards bus rapid transit systems (BRT, such as the Federal District’s Metrobus), urban transport improvements are increasingly deploying a model of infrastructure being provided by the public sector, with private supply of the vehicles. For example for stage I of the Leon BRT, bus owners and operators actively participated in the planning and fundamentally, in the financing of the system. The value of their contribution (mostly bus replacement) was estimated at MxP\$ 230 million Pesos – a significant contribution given the total Stage I system cost estimate of MxP \$430 million. Similar public-private partnership arrangements are planned for the proposed Stage 2 of the Leon system.

³⁰⁶ Private flows to infrastructure in Latin America have collapsed since the peak year of 1997, partly because of the economic crises in East Asia and Argentina, but also because much of the more attractive divestiture operations (mostly in telecommunications and power) have already taken place.

57. **In the case of housing finance, the system in Mexico is still largely dominated by public lending, though private lending has increased and the efficiency and competitiveness of public lending has improved.** SHF has been effective at sustainably fostering private lending to otherwise under-served households. SHF financing has permitted SOFOL loan balances to grow at 20 and 30 percent per year. As its liquidity window comes to a close in 2009, SHF's mortgage default insurance (MI) and financial guarantees will continue to provide a base for private sector growth.³⁰⁷ Financial guarantees foster the growth of mortgage securitization, providing a funding source for mortgage lenders. In the last four years, the outstanding amounts of securitized loans in the Mexican debt markets went from less than US\$100 million to US\$1.1 billion in mortgage backed securities and US\$1.2 billion in securitized construction loans. As the private sector moves into moderate income lending, SHF should set its product parameters to increasingly address lower income segments.

58. **INFONAVIT still plays a dominant role in the housing market, though declining interest rates, increasing operational efficiency and progressive loan pricing has reduced its degree of crowding out.** Importantly, INFONAVIT has widened its cooperation with the private sector, providing its members with the ability to better leverage their INFONAVIT savings accounts for a combined public and private loan or use their savings as a down payment for a private sector loan. INFONAVIT should further explore means to extend these products to households earning less than 5 minimum wages.

INSTITUTIONAL CHALLENGES

59. **Achieving better quality, access, and efficiency in infrastructure services will require stronger institutional arrangements, with increased coordination and planning within and across sectors, and greater accountability.** The role of the Government in infrastructure planning has changed over time, shifting its focus from public investment programs to issues of strategic direction, decentralization, private sector participation, and financial support. The housing sector calls for similar efforts to clarify institutional roles between CONAVI, FONHAPO and SHF. FONHAPO has outlived its usefulness, and its responsibilities should be passed to CONAVI and SEDESOL. Over the long term, the conflicting roles of INFONAVIT and FOVISSSTE as pension funds, mortgage lenders and subsidy providers should be resolved.

60. **Central coordination is essential, given the cross-cutting nature of these issues and their economic and political impacts.** Disjointed decision making about funding allocations has contributed to sector outcomes not linked with national development priorities. The process is least fragmented in the electricity sector, which is centrally managed. In housing, the recently approved housing law gives CONAVI a wider mandate to exercise direct control over the on-budget subsidy programs and to coordinate housing with urban planning. Exercising this role will allow better coordination of subsidies with national housing policy. Central budget funding should be used to prioritize activities that pursue the government's objectives of enhancing competitiveness and reducing poverty.

³⁰⁷ MI helps to make mortgages affordable for moderate income households by reducing down payment requirements. MI promotes financial system stability by allowing for greater distribution of risk among system participants.

61. **Closer coordination between the planning processes of national and state governments and the annual budget formulation process is necessary to set more realistic and attainable goals.** Across all sectors and national and subnational government agencies, policy planning and coordination should be better linked.³⁰⁸ One area to focus on is increasing the incentives and technical assistance for subnational planning. This is critical to the housing and transport sectors. There should also be better horizontal coordination among the various municipalities within metropolitan regions.

62. **To strengthen planning and link it more closely to budgeting (centrally and within sectors), the government could build on the annexes of the budget that project the future year outlays for individual investment projects, particularly in electricity and transport.** From this, one could project multiyear resource envelopes for programs and sectors (not just individual projects), which would include debt service and operations and maintenance.³⁰⁹ Such envelopes would be indicative and need subsequent Congressional approval in each year's budget. CFE already follows this approach and the *Secretaria de Comunicaciones y Transportes* (Ministry of Communications and Transports, SCT) is moving in that direction. The use of multiyear resource envelopes also eliminates the need to divide larger projects into components that can be finished in a year or less, with the higher total costs that entails.

63. **The government could also strengthen the authority of the secretariats for transport and energy and housing authorities to allocate indicative multi-year budget ceilings within their sectors and monitor and disclose compliance with performance targets for the key agencies that report to them.** For the sectors that involve several levels of government, namely housing, roads and water, experience in the United States and other federal nations in the OECD shows the value of using matching grants, with multiyear projections and dependence on meeting performance standards.

64. **Being accountable and meeting performance standards requires systems for the evaluation of large-scale federally funded programs, with respect to their efficacy and efficiency in achieving measurable quality and sustainability of service outcomes.** An ex-post evaluation would provide valuable information on what strategies work and why—informing the design of future programs. Such evaluations can also help establish incentives for good performance and lead to greater transparency. This often calls for better data collection, as is the case in the housing sector.

THE WAY FORWARD—A BETTER USE OF PUBLIC AND PRIVATE RESOURCES

65. **We propose seven main recommendations in this note pertaining to public sector funding, private financing, and the overall institutional environment.** The following

³⁰⁸ Between 2001 and 2005 the Tu Casa subsidy program has allocated on average 32% less than its approved budget largely due to lack of coordination between FONHAPO and local governments.

³⁰⁹ Annexes 4 and 6 of the budget give projections of investment outlays for several years of all electricity and road projects (hundreds) that are included in the budget for that year. Besides giving more detail than policymakers, Congress, or the public need to know, the annex tables do not give any indication of the expected flow of future investment totals, because most individual projects will end in the current fiscal year, so the future-year aggregates are always much less than half of the present year.

paragraphs present the general recommendations and the table in Annex 1 provides details by sector and theme.

Public Sector Funding

66. **First, public investment needs to make more effective use of taxpayer resources and to be more focused on areas that the private sector cannot finance.** This means reducing the role of the government in financing the electricity sector and toll roads, which have made substantial fiscal demands (many of them off-budget or contingent) and for which there is significant scope for increased private participation. The housing funds could expand their products that promote private participation – such as *Cofinanciamiento* and *Apoyo Infonavit* - for a larger proportion of their above 5 MW beneficiaries, while on budget subsidies should focus on the below median income groups. By the same token, this implies improving the efficacy of spending in traditional areas of public finance such as non-toll roads.

67. **Three sets of policy instruments—competition, financial markets, and regulation—could strengthen incentives for service providers to improve efficiency.** Competition is notably absent from the electricity sector due to the statutory monopolies of CFE and LFC.³¹⁰ In the housing sector, the public housing funds dominate the market, and have hindered the development of a diverse supply of housing solutions. By contrast, in transport, there are substantive competitive forces through intermodal choice, directly competing ports, and the presence of “free” roads in toll corridors. Private finance has been permitted in a few segments of infrastructure, but the structure and coverage of federal financial guarantees have muted the incentives for improving operators’ performance, as discussed below.

68. **Interim measures could improve efficiency and strengthen accountability for performance, without major changes in industry organization.** These include programs to enhance the autonomy and service orientation of public sector operators. In toll roads, the strategy should look at returning the current FARAC network to private concession, a process that will likely take several years. In the short run, improvements can be made through outsourcing FARAC’s toll-road maintenance. In housing, improving the corporate governance in INFONAVIT has improved efficiency and increased transparency and similar efforts could yield important results in FOVISSSTE.

69. **Second, the incremental public funding released through greater resource efficiency should focus on three areas: maintenance and rehabilitation, strategic bottleneck infrastructure segments, and extension of basic services and housing to the poor.** Additional resources need to be allocated on an ongoing basis to preventive maintenance and renovation, particularly for highways and electricity distribution, where the rate of return to such spending is much higher than to new investments. Examples of strategic segments of networks include electricity transmission, road links in the strategic corridors, and rail/highway urban bypasses. Such investments need not be large, but have important strategic value, and in some cases could be co-financed with the private sector.

³¹⁰ For a more detailed discussion of regulatory institutions, see chapter 3.

70. **Devoting a greater share of federal resources to infrastructure for the poor does not imply an absolute increase in spending.** On the contrary, targeting retail subsidies in electricity (and water) to poor communities and poorer households in better-off urban areas would release substantial resources for other uses. Subsidies should focus in the first instance on facilitating access of the poor to the service and extending coverage in small localities. To the extent that consumption of these groups merits subsidization, it should be limited to satisfying minimum basic needs. In the case of housing, the current low levels of on-budget subsidies merit scaling up if the Government is to seriously attack the housing deficit in the three minimum wage segment and below. Though greater scale is called for, delivering service and housing to the poor need not be costly, and relaxing technical norms governing choice of technology and billing methods have proven their worth in other countries. Examples include off-grid energy solutions for electricity. Similarly, shifting the current bias for new housing towards programs that promote progressive housing and housing improvements and better targeting to poor households could represent a more efficient use of resources.

71. **Third, better design of investment programs and selection of projects would improve outcomes.** To improve the cost-effectiveness of federally funded programs and thus reduce the magnitude of subsidies from the budget, closer coordination is required along several dimensions: i) between sectoral agencies and the Ministry of Finance and Public Credit (*Secretaría de Hacienda y Crédito Público*, SHCP) to keep long-term sector development plans in line with budgetary and broader fiscal realities; ii) between the SHCP and sector ministries to weed out projects of questionable viability; iii) among sectoral agencies to ensure balanced sector development (for example, gas–electricity in energy, and multimodal planning in transport); and iv) across levels of government (for example, regional transport planning and coordination of housing finance and provision of urban land).

72. **Even with limited competition, regulation, and financial market involvement, the government could still discipline operators' performance by making the size and type of transfer dependent on improvements in efficiency and service.** Such performance-based allocation could be applied in sharing toll-road short and long term efficiency gains between the SCT and SHCP.

73. **For performance criteria to genuinely affect resource allocation decisions, future resource availability needs to be predictable, such as through multiyear resource envelopes and budget ceilings.** This is already done to some degree for large individual electricity projects and to a lesser degree for transport, but should be applied to entire programs. Even in the interim, as procedures and systems are established for performance-based budgetary allocation, multiyear budgeting for infrastructure would permit more effective planning and efficient program execution.

Private Finance

74. **Fourth, private finance for infrastructure could be mobilized to a much greater extent to leverage public resources.** While the present outlook for rails, ports, toll roads, and housing appears promising, this is not so for electricity, even in segments that have historically attracted significant private finance, such as thermal power plants. Concerns about operators' present and future creditworthiness, the Federal Government's future willingness to step in to cover subnational or public enterprise obligations, and the lack of arms-length regulation strongly limit investor interest. Rather than having taxpayers assume still greater risks to attract private finance, efforts should be directed at the source of the uncertainty: namely the likelihood of political interference in the capacity of the purchasing distributor to pay for the service. The new concession scheme for state highways goes in this direction. Similar innovation is needed in the electricity sector.

75. **Fifth, federal credit enhancements will be required to attract sizable sums of private funding from domestic and international sources, but their design and functioning need revision.** To date, projects under federal jurisdiction have generally been backed by full guarantees of cash flow (for example, PIDIREGAS for electricity) or equity returns (FINFRA). This requires the government to take on more risks than necessary, and hence carry commensurately larger contingent liabilities. Since the Federal Government has an investment-grade rating on sovereign debt, it could offer narrower types of guarantees in the form of negative covenants, such as insurance against political and regulatory risk. For subnational projects, negative covenants may also reduce financing costs, but the enhancements will also require some kind of security based on assets or cash flow. These could take the form of state-level revolving funds for transport and other local infrastructure services. Such risk insurance and backstopping facilities should also help shift private finance toward distribution networks that interface with consumers. In terms of housing finance, SHF has played a critical role in leveraging private investment, at first through second tier financing and more recently through guarantees and insurance. The next challenge will be to expand their support to SOFOLs for finished middle income housing to support for lower cost housing products, and to expand financial support to lenders providing micro loans for lower income segments.

76. **Sixth, arms-length regulation of tariffs and service quality is largely absent at present.** Improved regulation, especially in electricity, could improve the performance incentives for public sector providers, as well as set the environment for more effective private investment as the sectors open. Improving sector performance will require greater clarity and coherency in policy goals and instruments, institutional responsibilities for establishing and regulating service providers, and pricing policies commensurate with those goals. The goals should make explicit the major policy decisions, such as the desired levels of access and service quality, the required levels of investment and potential sources of financing, and how noncompliance with regulations would be sanctioned.

77. **Other modifications of institutional arrangements should be considered.** For investors and operators to take on some risks now borne by the government and Mexican taxpayers, greater predictability of future cash flows is required, which is dependent on how tariff and service standards are set and adjusted. For electricity, this implies empowering the

Energy Regulatory Commission to function as a sector regulator, with oversight of retail tariffs, service quality, and contracts between CFE and service providers, including private generators and gas suppliers. For railways, the SCT should clarify the rules for service access among carriers. For highways, the SCT should expand the current pilot program for multiyear, standards-based contracts for maintenance.

Overall Institutional Environment

78. **Seventh, moving forward on the above recommendations will require greater accountability and better information on performance outcomes.** There is little systematic information on whether projects have had good or bad results, and such information rarely has any budgetary consequences. Sectoral agencies and subnational governments are demanding greater autonomy in investment planning, execution, and financing. Effective accountability should accompany this autonomy. Indeed, without reliable, verifiable information on actual performance, it is risky to respond unconditionally to demands for more autonomy. Rather, increments to autonomy should depend on improvements in accountability. Better performance tracking and information disclosure will require measures like the following: regular reporting by subnational governments on the use of federal transfers, especially Ramo 33/FAIS; and strengthening the *Centro Nacional de Control de Energía's* (CENACE's) and CRE's capabilities for measuring and reporting on service quality in the electricity sector. Such measures do not require large sums of money, yet they do require building institutional capacities among the concerned sectoral agencies and subnational governments, and sustained political commitment to transparency.

Proposal for a Short-Term Infrastructure Agenda

79. **The immediate priorities for the government would be those measures that preferably will use existing funds more efficiently, save money, or bring in more private sector funding.** Improving the selection of public sector projects, shifting spending toward maintenance, setting up agencies (or granting autonomy to existing ones) for arms-length regulation, and improving transparency could all start immediately.

80. **Improving institutions for transparency and accountability could also start immediately, but will take time to bear fruit.** Bringing more money in and improving targeting of consumer subsidies by electricity rates (closer to costs) on consumption by non-poor households and putting more efficient tariff structures in place will require strong political backing, and thus may be most feasible at the start of the administration. The case is similar for refocusing and increasing housing subsidies. Significant efforts to improve collections of existing tariffs should start immediately.

81. **A multiyear financing plan for infrastructure and housing subsidies (not just particular projects) should be incorporated into the next National Development Plan so that it will be a more practical guide for infrastructure and housing budgeting.** With such a plan and more resources coming in, it would then be appropriate to organize a sustainable increase in infrastructure investment and new housing starts.

82. **An improved regulatory framework will make it possible to attract more private sector participation without the sort of exorbitant guarantees that are common now, fully covering revenue projections.** The Government may replace these with partial-risk guarantee schemes to ensure, on the one hand, that the private sector has an incentive to be efficient and innovative and, on the other hand, that the Government fulfills its responsibilities as a partner of the private sector.

Annex 1: Principal Recommendations and Prioritization

The following table presents the principal recommendations for each sector, broken down by the main themes of this note. Although many of the recommendations may appear quite specific, they interrelate with one another in a number of ways to support increased competitiveness, territorial integration and improved social welfare.

Table A-1: Principal Recommendations by Sector and Theme

	Improving Service Efficiency and Quality	Public Finance: Allocation and Program Design	Private Finance and Credit Enhancement	Institutions, Information, Accountability, Coordination
Electricity	<p>Ramp up multiyear program to reduce transmission and distribution losses through modernization and maintenance of distribution networks.</p> <p>Strengthen capacity and public reporting on systems quality and technical performance (CENACE).</p> <p>Cost-effective technologies should be encouraged to promote access in rural areas.</p>	<p>Establish benchmarking and regulatory accounting.</p> <p>Redesign subsidies (reduce to minimum levels, focus on poor households and small agricultural users).</p>	<p>Increase flexibility of long-term power purchase agreements to reduce risks to CFE/Federation.</p> <p>Contain scope of PIDIREGAS and review structure to reduce burden on PSBR.</p> <p>Increase financing via carbon credits for intensification of natural gas, renewable energy and reduction in gas flaring.</p>	<p>Address LFC functional bankruptcy, to permit commercial operation.</p> <p>Empower CRE to function as regulator: oversight of tariffs, service quality, and contracts.</p> <p>Pursue options to permit buyers and sellers choice: power markets with multiple distribution companies (public or private) and independent transmission company.</p> <p>Consider options for introduction of private management and capital in distribution companies.</p>
Housing	<p>Link <i>Tu Casa</i> housing and Habitat urban infrastructure programs.</p>	<p>Scale up on budget housing subsidy programs.</p> <p>Link <i>Tu Casa</i> and other housing subsidies to local govt. reforms of urban land allocation practices and regulations.</p> <p>Revise subsidy structure in existing programs to eliminate bias toward new housing.</p> <p>Eliminate Fonhapo second tier financing programs for home purchase. Focus its resources on</p>	<p>Expand housing funds' products that leverage private finance sources (eg. <i>Cofinanciamiento</i> and <i>Apoyo Infonavit</i>).</p> <p>Expand SHF support to mortgage lenders that service lower income households and provide micro loans for lower income segments.</p>	<p>Resolve the conflicting roles of INFONAVIT and FOVISSSTE as pension funds, mortgage lenders and subsidy providers.</p> <p>Improve FOVISSSTE transparency and management.</p> <p>Improve the quality and quantity of data available on housing through improving CONAVI comprehensive housing database.</p>

	Improving Service Efficiency and Quality	Public Finance: Allocation and Program Design	Private Finance and Credit Enhancement	Institutions, Information, Accountability, Coordination
		<p>financing home-improvement/ expansion loans to complement capital grants for serviced lots.</p> <p>Move PROSAVI subsidy program toward lower income, but still mortgageable household segments.</p> <p>Provide capital grants for serviced lots.</p>		
Transport				<p>Strengthen coordination among modal agencies to facilitate efficiency gains from multimodal competition.</p> <p>Establish systematic ex post evaluation at project and program levels.</p> <p>Strengthen tripartite coordination at regional level through regional road councils.</p>
Ports				Strengthen oversight of API's planning to ensure port facilities and operations best meet future demand.
Highways	<p>Use multiyear, standard-based contracts to increase maintenance efficiency.</p> <p>Reinforce asset management capacities of states and municipalities.</p>	Continue to strengthen planning processes; demand and cost estimates; allocate resources on technical criteria.		
Toll Roads	Permit FARAC to outsource O&M to private firms. (short term).		Promote a gradual transfer of FARAC network to long term private concessions.	Set an institutional organization to cope with the new concessions, separating policy and planning from regulation and control.
Urban Transport	Promote use of public mass urban transport systems			Promote and strengthen urban transport planning institutes.

	Improving Service Efficiency and Quality	Public Finance: Allocation and Program Design	Private Finance and Credit Enhancement	Institutions, Information, Accountability, Coordination
	(e.g. DF, Leon BRTs) Strengthen traffic management (road safety, congestion pricing.)			Assign more responsibility for demand management to the municipalities rather than the state.
Multiple Sectors		<p>Institutionalize multiyear budgeting based on approved financing plans and future budget ceilings.</p> <p>Streamline budgetary release procedures and synchronize with local government budget cycles.</p> <p>Increase reliance on user fees and/or state/local own revenues.</p>	<p>Rebalance PPP and credit guarantees toward underserved subsectors.</p> <p>Reduce reliance on full federal guarantees, shift to partial off-take and risk guarantees.</p>	<p>Strengthen oversight capacity of subnational government, and accountability for use of unconditional transfers.</p> <p>Establish systematic ex post impact evaluation as a basis for future funding and program revision.</p> <p>Strengthen vertical coordination in planning, financing, and regulation.</p> <p>Improve coordination among sector agencies and SHCP on financing policies, investment priorities, and budget negotiations with Congress.</p> <p>For local infrastructure, establish state revolving funds for PPPs, disbursed on performance criteria.</p> <p>Revisit BANOBRAS business model: separate retail financing role from origination and guarantees.</p>

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Mexico Toll Roads: Time to Return to the Private Sector to Manage and Expand the Network

José Barbero

Abstract: Mexico toll roads - the backbone of the country land-based transportation – are the result of a massive concession program started in 1989, which led to a bailout in 1997. The institutional organization to manage the roads established at that time was centered on a fiduciary fund, which allowed for the control of the large inherited public debt. This emergency arrangement is showing some shortcomings in order to deliver adequate service to users, to ensure appropriate management of major public assets, to end the debt burden, and to help the completion and capacity expansion of the network. The analysis leads to the conclusion that the current organization scheme is reaching a ceiling, and a new arrangement is necessary. An institutional reform is proposed, centered at the gradual return of the toll roads network to the private sector through the implementation of an array of long term concessions; the resources obtained from them will be used to cancel the debt and to finance new toll roads. The new market organization will request a redesign of the government structure, separating the policy and planning functions from those of regulation and control. While this process evolves, short term efficiency improvements might take place in the toll roads operation through the outsourcing from private firms. The implementation of this reform demands a very careful planning, harmonizing the changes over time.

1. Background

1.1. Mexico's toll road network

Paved roads are the backbone of the highway system in Mexico; most key links are in the federal jurisdiction, alternating toll and free segments highways which - combined - are responsible for 79% of the 254 billion ton-km annually transported by surface. It is worth noting that about half of Mexican external trade is transported by roads. Mexico's almost 5,000 km toll roads network is one of the key components of Mexico's road transportation system. Around 80% of this network was constructed at the end of the '80s and beginning of the '90s, under the auspices of an ambitious concession plan.

The dominance of road transportation over railways in the freight market and in the passenger flow is clear as illustrated in Figure 1.

Figure 1 – Surface transportation modal share – 2004

	Highways	Railroads
Freight Transportation		
Net Tons (million)	426.1	88
Tons-km (billion)	199.8	54.3
Public Passenger Transportation		
Passengers (million)	2344.3	0.2
Passenger-km (billion)	333.1	0.07

Source: SCT Anuario Estadístico 2004

Towards the end of the ‘80s Mexico’s toll road network was only 1,000 km, administered by *Caminos y Puentes Federales (CAPUFE)*, a federal agency. The expansion plan promoted from 1989 onwards relied on strong private sector involvement for network construction, financing and operation. The government responsibility entailed granting the right of way and conducting the tender process for awarding the public work construction contract. The implementation of the plan encountered difficulties from the beginning due to cost overruns during the construction phase and overestimation of traffic demand forecasts. Starting in 1992 several attempts to renegotiate the contracts failed, and together with the macroeconomic crisis that hit Mexico in 1994, the Government finally opted for a massive bailout of the concessions at the end of 1997.³¹¹

1.2. The genesis of the current institutional setting

The institutional arrangement currently used to manage the toll road network in Mexico is the result of a decision taken in 1997, during an emergency situation, when the Government rescued the private concessions. Since then, four different government entities shared the responsibility of managing the toll road network under the umbrella of a special trust fund created at the time of the bailout –the *Fideicomiso de Apoyo para el Rescate de Autopistas Concesionadas* (FARAC). This trust fund was established within Banobras, the state infrastructure Bank responsible for the administration of many public fiduciary funds. FARAC Technical Committee, the body responsible for the trust fund governance, was chaired by the Finance Ministry (SHCP, *Secretaría de Hacienda y Crédito Público*), together with the Transportation Ministry (SCT, *Secretaría de Comunicaciones y Transporte*) as a key player. CAPUFE was commissioned to operate and maintain the toll road network through a contractual agreement with FARAC; at the same time it continued to managing the pre-existing highway system.

Figure 2 summarizes the role of each of the agencies and entities involved in the management of the toll roads, as it was conceived in 1997, including the new FARAC network as well as the former CAPUFE one.

³¹¹ A summary of the toll road network development and bailout is presented in Gómez Ibáñez (2003).

Figure 2 – Toll roads institutional setting after the 1997 rescue

Agency/ Entity	Main responsibilities in FARAC network	Main responsibilities in CAPUFE network
SHCP <i>Finance Ministry</i>	Heads FARAC Technical Committee. Approves tariffs. monitors sufficient revenues is generated to service debt	Can request CAPUFE revenues generated in excess of operations.
SCT <i>Transport Ministry</i>	Co-heads FARAC Technical Committee. Sets technical standards	Exercises general oversight on CAPUFE when approving investment plans and tariffs.
BANOBRAS <i>Public Infrastructure Bank</i>	Manages FARAC through its Fiduciary Funds Department. Takes part in Technical Committee; day to day link with CAPUFE	
CAPUFE <i>Highways management SOE</i>	Operation, maintenance, and execution of investment plans. Participates in FARAC Technical Committee meetings although not as a formal member.	Operation, maintenance, and execution of investment plans.

1.3. Recent improvements to the institutional framework

The institutional setting established in 1997 was altered after 2002 with the introduction of three relevant changes: (i) the strengthening of FARAC governance body, (ii) the transfer of the main CAPUFE network highways to FARAC, consolidating the management of the national toll road network, and (iii) the launching of a new public-private scheme to expand the network.

(i) The strengthening of FARAC governance

During 2004 significant steps were taken to strengthen FARAC management. A unit specialized in infrastructure was created within BANOBRAS trust funds section, and three sub-committees were established within FARAC's Technical Committee (operations, planning and administration). The most outstanding results have been the strengthening in networks planning functions, and a better management of the contract with CAPUFE. As regards the network planning and maintenance programming, a three-year plan and a budget procedure were implemented, aligning priorities with needs. Expenditures decisions were rooted in this plan, reducing the discretionary (politically oriented) use of funds. Total expenditures were slightly reduced, representing 28% of toll revenues in 2005 and 2006 (30% in previous years). A study on tariffs elasticity was contracted, in order to review the tariff policy. As regards managerial procedures, the ones aimed at payment request and disbursements were improved, increasing technical supervision and control on the expenditures, and accountability through reporting procedures. Works insurance primes were reduced by 50%; a similar criterion is being adopted for users' insurance. A new study has

been contracted looking at outsource operation and maintenance from private firms with a contract frame that includes incentives and penalizations.

(ii) The consolidation of the national toll roads under FARAC

A process of transference of mature, high revenue generating toll roads owned by CAPUFE on to FARAC started in 2003, aimed at improving its revenue collection stream. Ten CAPUFE toll road segments were transferred in August 2004, costing FARAC 10,000 million pesos (that were paid to SHCP). As of today, FARAC “owns” 49 toll road segments, representing a total of 4522 km. The transfer process has implied a redefinition of the roles played by both FARAC and CAPUFE: CAPUFE is now focusing on operation and maintenance of roads owned by third parties (only owns 2.7% of the national network), FARAC experiences debt service improvements as a result of the acquisition of heavy traffic (and revenue) roads, and CAPUFE can operate with more latitude when performing services for third parties.

(iii) The launch of a PPP scheme to expand the toll roads network

A new framework for granting road concessions, (*Nuevo Esquema de Concesiones*, NEC), was designed in 2002 with the aim of expanding the toll road network. It consists of a public-private partnership scheme by which both the private investor and the Government provide capital contributions. The scheme provides as well for a subordinated government contribution in the event revenue flows are not sufficient to service debt. The new concession scheme is organized around a trust fund (FINFRA) administered by BANOPRAS. Since 2003, 7 new projects have been awarded involving 620 km for an approximate cost of 14 billion Mexican pesos.³¹²

2. Toll roads challenges and the need for an institutional reform

2.1. An assessment of the current situation

The main dimensions to assess the institutional setting are: its capacity to service the debt; the management of the physical assets; the service brought to the users in terms of quality and price; and its ability to allow for the network expansion.

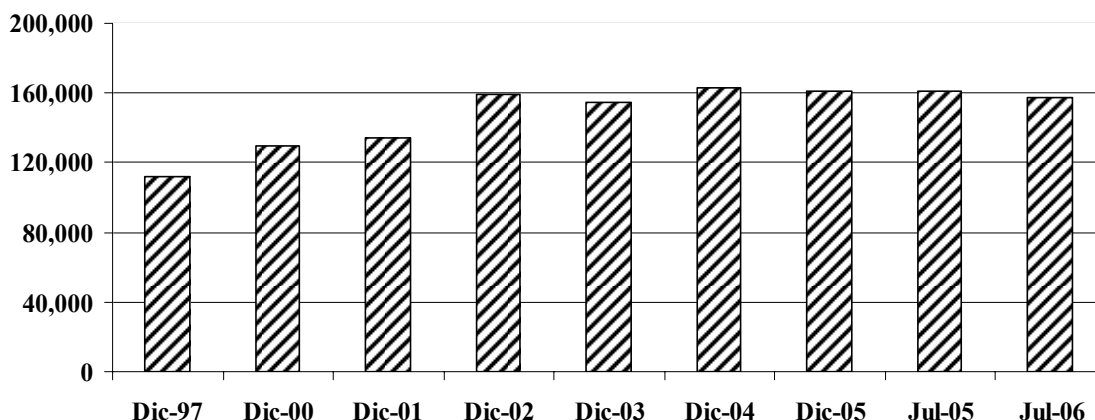
From the viewpoint of the **debt management**, the fiduciary fund managed to avoid any direct impact on the Federal Government, who is the guarantor of the issued debt (therefore, subject to contingent liabilities). Nonetheless, FARAC’s indebtness has been increasing from the bailout, only recently stabilizing. Figure 3 illustrates FARAC’s debt evolution where net debt increased 40% from December 1997 to July 2006 (in constant terms)³¹³.

³¹² Information corresponds to NEC program

http://portal.sct.gob.mx/SctPortal/appmanager/Portal/Sct?_nfpb=true&_pageLabel=P38004

³¹³ Banobras.

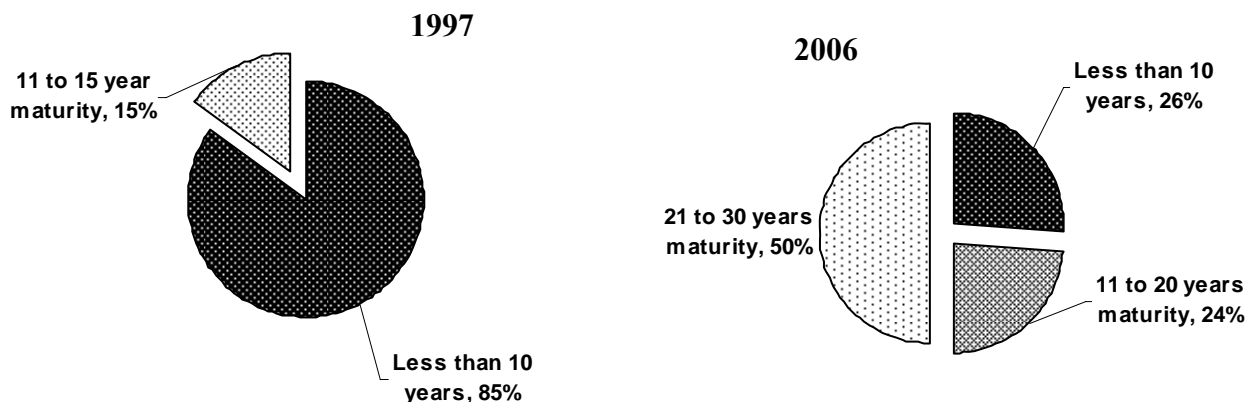
Figure 3 – FARAC’s Net Debt Evolution – In millions of July 06 pesos



Source: SHCP

In terms of its profile, the debt composition improved since 1996 when 85% of FARAC’s debt was redeemable in less than 10 years with the remaining 15% payable in 11 to 15 years, whereas as of July 2006, only 26% matures in the next 10 years and 50% of it has much longer maturity (21 to 30 years) (Figure 4).

Figure 4 – FARAC’s Debt Composition 1997 vs. 2006



Source:

As regards the efficiency in **roads operation and maintenance**, CAPUFE’s contract with FARAC provides no incentives for the improvement of its services. The interaction between the two institutions is theoretically based on commercial terms of client/supplier/auditing agreements, but lacks the proper set of incentives to result in the win-win outcomes expected from truly commercial contractual arrangements. The result of weak contract design and lack of enforcement translates into less financial resources (evasion), expensive maintenance costs,

and poor service to users. CAPUFE's performance experiences some shortcomings; although it has shown some progress, there is plenty of room for improvement. Operation and maintenance inefficiencies translate into costs being estimated as 30% higher than what they could be. Another 7% is estimated to be lost in evasion (unrealized revenues would account to around US\$100 million). There is a recurrent expansion of the works contracts (in around 80% of the cases, with a cost increase up to 30-40%; SCT). CAPUFE showed difficulties to implement a new electronic ticketing system.³¹⁴

As regards **service delivery and prices**, FARAC's network condition is rated as satisfactory in only a 65% of its length.³¹⁵ The roads experience congestion in certain segments: 14% of the network currently shows level of service rated as D and E, suggesting the economic convenience of the addition of extra capacity. Toll rates are expensive, in the range of US\$16.7 per km (around \$10 in other developing countries, \$13 in the US and France); however, the interlaced network allows users to alternate toll and toll-free segments, so comparisons with other countries should be carefully approached. Collateral businesses, with the potential of bringing additional revenues from commercial development along the tolled network and add value to customers, are not being tapped. In addition, illegal businesses have already settled which will be difficult to remove. Right of way rules are not clear enough; control is weak and enforcement poor.

The **expansion of the toll road network** through the NEC is not serving the long term purpose of securing network development and management in line with the country's strategy for economic competitiveness and growth. The new concessions scheme is moving at a slow pace. The PPP structure requires the use of public funds (through FINFRA) and strong in-house capacity (project design, elaboration of bidding documents and process, supervision during construction). Public resources to be allocated in FINFRA are scarce, and the SCT finds difficulties to develop and implement several projects all together.

In summary, the toll roads network is in need for a substantial revision of the present institutional arrangements and for building up the capacity of the relevant public agencies to adapt to a new sector paradigm of efficiency and competitiveness. The 2002-2006 changes, although very positive, are revealing the constraints of the current management structure.

2.2. Relevant trends faced by the toll roads

Looking forward at the challenges that Mexico is facing regarding its transportation sector - and the road-based transport specifically - some relevant trends emerge. The most outstanding ones concerning the tolled highways are: (i) the growth in the motorization rate and the concentration of traffic flows on high volume road segments, (ii) the growth of trade over the highways network, (iii) the growing demand for quality of service (including road safety), and (iv) the appetite that the private sector is showing to develop and manage toll roads.

³¹⁴ The new system has not attracted as many users as expected, and its costs are considerably higher than the previous one.

³¹⁵ Considering satisfactory when IRI is 2.8 or less.

(i) Growth of motorization rate and concentration of traffic flows

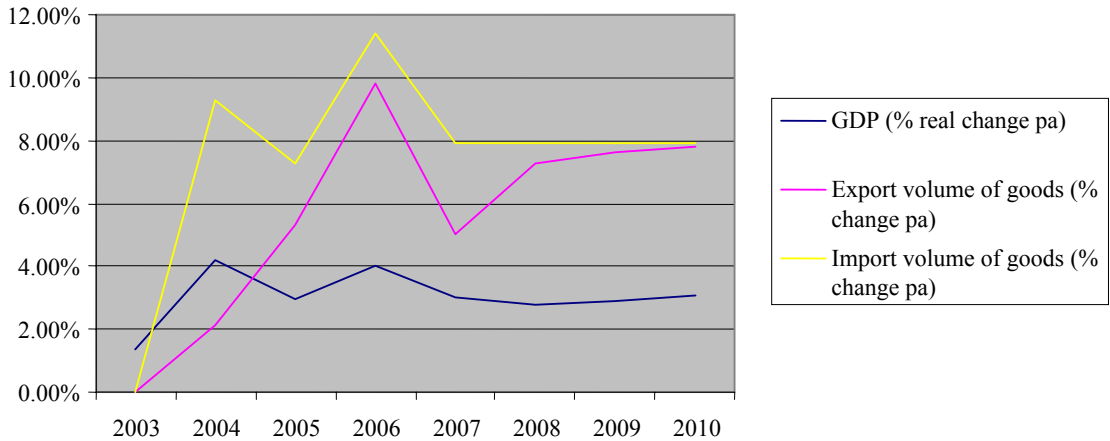
Road vehicle ownership - closely linked to GDP per capita - is one of key variables explaining surface transport demand. In the case of Mexico, OECD estimates forecast 19.4 vehicles per 100 population (vhp) in 2010 increasing to 29.0 by 2030³¹⁶. In addition, beginning on January 1, 2009, a 10-year phase out period will commence allowing used cars from the US to be imported into Mexico without payment of duties based on vehicle age pursuant to provisions in the North American Free Trade Agreement (NAFTA) contributing to increase the motorization rate.

Traffic volume has increased in the whole network system; however, traffic flows have increased significantly more in the toll network than in the free segments. There is a clear trend to concentrate vehicles flow in the higher standard segments (as most of the toll roads are); in the toll-free network, for example, ...

(ii) Trade: Mexico exports and imports growth and its impact in road network.

Evolution and forecasts regarding of the growth rate of Mexico's GDP, exports and imports are illustrated in Fig. 5 below. The increase in foreign trade expected to accompany growth rates will have a significant impact on the road network demand. As mentioned before, most of Mexico's freight is transported through the road system which is essential for the country; exports to the US market represent more than 86% of total exports in value.

Figure 5 – Growth rate of Mexico's GDP, exports and imports



Source: INEGI

(iii) Demand for quality of service.

Users of road infrastructure are increasingly demanding more than a good paved surface. Toll-road payers are willing to receive good quality of service in areas like the toll boots,

³¹⁶ "Infrastructure to 2030. Telecom, Land Transport, Water and Electricity". OECD Publishing 2006.

service stations or mechanical emergency help; they are unwilling to accept delays due to works, given that they are paying high toll fares. Additional improvements such as emergency phones along the road, tow services and efficient electronic collection of fares to expedite traffic flow are examples of current expectations. Safety conditions and accident prevention are also increasingly requested; although the fatalities index is declining slowly (85 in 2003, with 1990 = 100) there are some 5700 casualties per year in Mexico, 600 of which take place in the tolled roads.³¹⁷

(iv) Private interest in develop and manage toll roads.

In terms of the existing appetite for private sector involvement in financing road infrastructure, a World Bank database for developing countries identified 95 road projects in partnership with the private sector between 2000 and 2005. As illustrated in Figure 6, the bulk of these projects were in Latin America, followed by South Asia.

Figure 6 – Highways Private Sector Projects – 2000 to 2005

Region	Number of transactions	Value (million of US\$)
East Asia	21	5,185
Europe and Central Asia	4	2,471
Latin America and the Caribbean	42	9,458
South Asia	26	2,036
Sub-Saharan Africa	2	467
TOTAL	95	19,615

Source: World Bank - Private Participation in Infrastructure Database

In Latin America most of the projects involved concessions contracts to build, rehabilitate, operate and transfer highways, followed by greenfield projects and only 6 management contracts. Investment amounts committed ranged from \$10.8 million to \$800 million, with an average investment amount of approximately US\$200 million. Chile attracted the highest investment commitments, with a total of \$4.1 billion, followed by Brazil with \$1.8 billion.

³¹⁷ Joint OECD/ECMT Transport Research Center (2006)

The private sector appetite for toll roads: examples and actors

As an example of recent private sector involvement in toll road projects, the International Highway 60 in Chile was estimated at US\$434 million. Financial closure was reached on December 2005 when Obrascon Huarte Lain obtained two syndicated loans for a total of US\$381 million in the local banking market. One loan was for US\$191 million and seven year repayment, while the other was a 20 year US\$170 million loan. Those loans, arranged by *Banco Santander* and BBVA, represented the largest and longest dated deal ever syndicated in Chile's banking market.

Globally, the top three sponsors in toll-roads projects in the last five years (2000-2005) are ACS Group (*Actividades de Construcción y Servicios*), Sacyr Vallehermoso (SyV) and Obrascon Huarte Lain (OHL) and Impregilo SpA all of them taking part in projects worth more than US\$ 1 billion.

An interesting experience has been the development of the Australian private toll road sector – of relatively recent event, with the first true modern private sector toll roads opening in Sydney in 1992. The Australian private sector toll roads are characterized by long-term concession (usually 30 and 40 years) centered on the major cities of Sydney and Melbourne. The sector has performed well to date and is approaching a transitional phase. The operating private sector toll road concessions are now at a more mature stage, generating strong returns and being able to be financed on attractive terms (either rated or unrated) by both banks and the bond markets, but generally using project finance-style structures. The major players in the Australian toll sector include Macquarie Infrastructure Group MIG (a listed toll road investment fund managed by Macquarie Bank) which owns a global portfolio of toll road assets, and Transurban Group. In the US, Macquarie acquired a 99-year lease of the Chicago Skyway worth \$1.8 billion in 2004.

2.3. The need for an institutional reform

The current organization has proved to be good for the emergency, and should be acknowledged for hindering a severe fiscal impact after the 1997 bailout. But it is showing some shortcomings in order to deliver adequate service, to ensure appropriate management of major public assets, to end the debt burden, and to help the completion and capacity expansion of the network. The recent changes - although good - show the constraints of what could be done under the current institutional structure. FARAC is a “*fideicomiso sin estructura*”, and as such it is trying to manage a network of 5,000 km high- standards highways, originally conceived to be administered by more than 20 concessionaries.

The previous analysis leads to the conclusion that the current organization scheme is reaching a ceiling, and a new arrangement is necessary in order to cope with the new challenges. Market trends reinforce the need for expanding the network, adding capacity, and improve quality of service.

Keeping the current organization may also entail some risks. It is important to recognize the transitory nature of the arrangement and its limitations. As soon as FARAC tries to improve its management functions, it finds the limits imposed by its fiduciary nature. If FARAC organize a management structure, it would become a *para-estatal*, in which case the contingent liability would be registered and its budget should be approved by the Congress. It is worth noting the magnitude of the toll roads operation (tolls collected annually are in the range of US\$ 1.6 billion), which increasingly calls for the attention of the Union Congress.

Therefore, the current scheme is somehow vulnerable: a contingent political risk exists, which may eventually force changes in the coming years, without the adequate planning.

In summary, the policy options as regards institutional management of the toll roads are two: to continue with the current institutional arrangement, or to reform it returning to the original design, in which the private sector has a relevant role as investor and manager. The first alternative presents limitations and also some risks. The second one is the objective of this policy note,

3. Reform objectives and expected benefits

3.1. General objectives of the institutional reform

The objectives of a toll roads institutional reform are diverse, and should be adequately balanced. The most relevant are:

Ensure debt service payment. The new arrangement should guarantee debt service leading towards canceling the debt and getting out of the emergency generated in the 1997 bailout.

Provide an efficient management for these sizeable public assets. Efficiency should be two-fold, both in resources allocation for operation and maintenance and in revenue collection.

Take stock of the potential participation of the private sector. Its role may be relevant providing investment and management.

Develop an integrated network. Sound investment programs that address the need to complete the network by prioritizing projects that lead to maximizing coverage and regional cohesion, completing transversal roads and missing links. Control congestion in key segments, make sure the interoperability of the network.

Develop a service oriented culture, considering high standard roads as tools for competitiveness. Focus on quality of service. Sound pricing policies that ensure the expansion of the network without diminishing the country's competitiveness.

Ensure transparency and accountability.

3.2. The reform pillars

In order to meet these objectives, the proposed reform looks at the gradual return of the toll roads network to the private sector through the implementation of an array of long term concessions. It is expected that - in a considerable period of time - the toll roads will be managed basically by diverse private operators; they will be responsible for the operation, and

eventually for the extension, or capacity expansion, of the concessioned roads. These operators are expected to purchase the concessions through competitive bidding; the resources obtained will be used to cancel FARAC debt and to finance new toll roads. This arrangement will request a reorganization of the government structure, separating the policy and planning functions from those of regulation and control, and will also request an agreement among the operators to facilitate the use of an integrated ticketing system ensuring network interoperability. While this process evolves, short term improvements will take place in the toll roads operational efficiency, allowing FARAC to outsource operation and maintenance to private firms, through multiyear, output based contracts.

The proposed reform is supported by three main pillars, which are described below.

(i) Gradual transfer of operations to the private sector, linked with debt cancellation and network expansion

The concessions for the toll roads would be sold as packages; this process would help alleviate the outstanding debt and at the same time would also provide cash flows in the short term and on a continuing basis. The road packages will be progressively awarded in long term concessions to private firms, requesting an up-front payment that will be partly used to cancel a portion of the debt. (Only around 12% of the debt can be paid in advance; the remnant is made of bonds, which may be eventually purchased or be paid at maturity). With the remaining revenue, the private concessionaries will construct new road segments established in the contract.

A group of four FARAC highways is currently being analyzed with this purpose, as a pilot case. Preliminary results show that the FARAC remaining 11 years of concession would need to be extended to 14 years in order to repay its debt³¹⁸. If SCT concedes the package for a larger period (i.e., 30 years, as in the NEC) the net revenue would exceed the debt, generating resources that may be allocated to expand the network (coverage, capacity), through an ad-hoc fiduciary fund. In this case, to finance a key large, transversal project, the Durango-Mazatlán highway. The project has considerable construction risk, and will generate network effects difficult to anticipate. After some time operating, reduced the demand risk, the highway would be given in a long term concession.

(ii) A new governance structure

The new organization of the market – characterized by multiple toll road concessionaires – demands the redefinition of the governance scheme. This reform is crucial, and should consider the following key functions:

- *Policy and planning*, setting roads technical specifications, level of service, toll rates structure and values, electronic toll specifications, safety standards, etc., as well as plans and projects to complete the network coverage and expand capacity where it is needed.

³¹⁸ The four segments generate \$Mex 2,000 per year; a 30 year concession would yield annually \$Mex 25,000, of which 60% would go to FARAC to cancel debt (10% of debt), and 40% to a new project.

- *Regulation and control* of the multiple concessions, supervising contract compliance, dealing with fare adjustment and other toll road regulatory functions, including conflict resolution.
- *Service harmonization* among the multiple providers (private, public or mixed) particularly as regards the management of an integrated electronic ticketing service.

It is foreseen that the first group of functions may be performed by the Current *Unidad de Cuota*, strengthening its capacities: staff, information systems, etc. The second group may be performed by a specialized agency or a regulatory body; the largest the expected private sector participation, the most independent this institution should be. The third function should be performed by a private association; the organizations developed in France and Spain provide good examples on how to set it.

(iii) Short term gains in efficiency and quality of service

While the transfer to private sector is carried on, there is room to improve the roads management, contracting out to private operators the functions that are currently requested from CAPUFE under the terms of the FARAC-CAPUFE agreement. A study to define packages and contract structure-bidding documents is currently carried on by FARAC. A pilot experience may be necessary. This activity should be clearly harmonized with the long term reform, because a potential conflict does exist: the multiyear maintenance and operating contracts may delay the long term strategy (the concession). Therefore, a careful planning will be needed.

3.3. Reform expected benefits

The room for improvement in the management of the toll road network in Mexico is ample, given the current status described in the previous pages. A reform process can only be labeled as a “win-win” situation. The more direct and evident expected benefits are, just to name a few:

- (i) Substantial reduction of operating and maintenance costs as a result of introducing competition for the services and therefore forcing CAPUFE to improve its efficiencies if it expects to remain a player.
- (ii) Consolidated network revenues should increase by reducing evasion when improving control mechanisms as well as by developing collateral commercial undertakings by utilizing business oriented strategies to the network management.
- (iii) Improvements in service quality to users by reducing waiting times in toll booths, improvements in security; the adequate contract design with better incentives and penalties will provide the right framework for achieving these improvements (a key to

success is developing in parallel the institutional capacity to enforce the contracts, apply penalties and so on)

In addition, the released financial resources will bring other positive impacts worth mentioning such as:

- Accelerate the cancellation of the existing debt and freeing fiscal space for other social needs
- By gradually transferring certain toll road packages to the private sector, there will be more leeway for network extension and expansion. With additional financial resources the reform will promote investment in network expansion if adequate planning for the sector is carried out. The existing PPPs program requires significant budget resources, which have to be committed for a long period of time tying public funds that could be allocated elsewhere.
- Toll level reductions. As an example, in the case of the Mexico-Toluca highway the toll value was reduced by 37% (from \$80 to \$50) which promoted an increase in traffic of 40%. Total revenue reduced in 12%. (?)

4. Reform implementation

4.1. Reform options

The implementation of a reform demands the coordination of different actions, attending particularly at its time schedule, and requesting a meticulous integrated financial planning. Some of the most relevant issues on which decisions are to be made are discussed below.

The concession groups and schedule. The definition of the groups should be based in several criteria. One is the geographical contiguity of the road links (to minimize operational costs). Another is its size in terms of the financial requirements to get the concession. A preliminary analysis shows that, overall, the FARAC network concession present value is in the range of the US\$ 25 billions. A large number of concessions will necessary in order to generate feasible business for the local capital markets. Therefore, the dimension of the groups should be confronted with the capital market capacity.

The expansion plan, setting the needs and their timeline. A clear path of completion (new links) and expansion (add capacity to existing links) in the network is key. This definition should be based on realistic demand forecasts, integrating the tolled and non tolled road networks.

The windows of opportunity for FARAC to outsource operations and maintenance prior to the concessions, avoiding any conflict. The short term strategy should be subordinated to the long term one (the concessions)

Electronic ticketing. As CAPUFE is the major operator of federal toll roads, it has been managing in a centralized mode the electronic ticketing system, looking for its expansion and modernization in the last few years. If the network is made by many private (as well as public and mixed) operators, a decentralized mode should be designed, that remains transparent for the users. In many countries this is solved through an association of toll roads operators, that coordinate the commercial policy and is responsible for the clearing. Examples of Spain, France and Italy may be particularly useful for Mexico.

The new role of CAPUFE. The main player that may be negatively affected from the proposed reform will be CAPUFE, as its scope of activity might be substantially reduced. The future of CAPUFE and the reform management strategy should be carefully planned, particularly as regards labor. The gradual concessioning would reduce CAPUFE activity, particularly if it is combined with FARAC outsourcing its M&O from the private sector in the meanwhile. CAPUFE will keep probably managing some infrastructures (bridges, other toll roads, eventually some groups with little commercial attractiveness), and it may be in the interest of the Government to keep some operational capability by its own. Part of the labor may be transferred into the new concessionaires.³¹⁹

The financing of the network expansion. The long term concession would provide the resources to construct new toll roads, or eventually to add capacity to existing ones. This may be done in two ways: getting resources from the concession payment and building them as conventional public works (to be given later in concession), or including them among the concessionaries obligations. Additionally, a third mechanism will be available: the NEC, which may be object of some adjustments (particularly in the way risks are dealt with in concessions awarding and subsidizing). The criteria to define which mechanism - or combination of mechanisms - will be utilized in each segment identified in the expansion plan should be defined; construction and demand risks may be factors to take into consideration. The transitory operation of the roads build as public works, and to be later given in concession, should be also matter of analysis.

The institutional organization. The government setting should be adapted to the new scheme, in which the federal toll roads will be managed by private concessionaries instead of by governmental institutions. The organization of the policy and planning functions within SCT demands realism: the relevance that the toll roads have in the country economy should be reflected in the resources allocated to manage this function. The organization of the regulatory function should be carefully planned, looking at experiences in Mexico and abroad, and checking carefully with the potential investors.³²⁰

Toll fares. The level of toll roads is a matter of debate; in a recent comparative analysis, Mexican fares levels appear higher than in other developing countries, and even that in other OCDE countries (Bhandari, 2006). In Mexico the usual perspective is that of service provision and infrastructure finance, which tend to justify the current level; the main reason

³¹⁹ As regards how to deal with labor issues, the Bank developed a specific toolkit, with the support of PPIAF. World Bank – PPIAF (2005)

³²⁰ A report by Correa et al. (2006) provides an extensive coverage of institutional design and the boundaries between policy and regulation, bringing the experience from many regulatory bodies in the last decade.

argued is that the toll road network does not receive any subsidy, and the users' fares should cover all operational and capital costs. The viewpoint of users and - particularly - recent studies on competitiveness, identify the fare levels as one of the factors that rise trucking industry prices, which are higher than should be, affecting this way the country global competitiveness. (IMCO, 2005). A reform process should review fare levels and structure.

4.2. Proposed implementation strategy

The implementation of the proposed strategy demands a careful plan, and the setting of a team able to lead such a complex process. It presents relevant technical, financial and legal challenges, but attention should be also place in the stakeholders' management, in order to make the reform politically viable. Some annotations on the reform implementation follow.

Set a team. The implementation of a substantial reform like the one proposed request a dedicated team, that will need to remain responsible for it for a extended period. This team should include experts with acknowledged professionalism on diverse fields (engineering, finance, legal, institutional, transport economics), the trust from the major stakeholders, SHCP and SCT, as well as a high level linkage with them. The team should be independent from the day to day operation of FARAC toll roads, and be ensured autonomy and funding according to its large responsibility.³²¹

Integrated planning and development of a road map. The toll roads reform team should start its work by developing a comprehensive plan and an implementation road map, to be discussed and agreed upon with SHCP and SCT.

The transition period. The toll roads reform is expected to take several years. Therefore, a complete transition plan should be elaborated, covering technical, financial and institutional issues.

³²¹ The assistance of an IFI may be particularly useful in this regards, in order to ensure funding and autonomy to the reform team.

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ABBREVIATIONS AND ACRONYMS

AFORE	Pension Fund Administrator	Administradoras de Fondos para el Retiro
AGE	School Management Support Program	Apoyo a la Gestión Escolar
ANATEL	National Association of Telecommunications	Asociación Nacional de Telecomunicaciones
ANMEB	National Agreement to Modernize Basic Education	El Acuerdo Nacional para la Modernización de la Educación Básica
ARD	agriculture and rural development	desarrollo agrícola y rural
ARI	acute respiratory infections	infecciones respiratorias agudas
ASERCA	Support and Services to Agricultural Trade	Apoyos y Servicios a la Comercialización Agropecuaria
AVANCE	High Value Added in Business with Knowledge and Entrepreneurs	Alto Valor Agregado en Negocios con Conocimiento y Empresarios
BANCOMEXT	Mexico's Bank for Foreign Trade	Banco Nacional de Comercio Exterior
BANOBRAS	National Development Bank for Public Works and Services	Banco Nacional de Obras y Servicios Públicos
BANRURAL	National Bank for Rural Credit	Banco Nacional de Crédito Rural
BANSEFI	National Savings and Financial Services Bank	Banco del Ahorro Nacional y Servicios Financieros
BANXICO	Bank of Mexico (Central Bank)	Banco de México
bafd	Billion cubic feet per day	billones de pies cúbicos por día
BOM	Bank of Mexico	Banco de México
BRT	bus rapid transit	tránsito rápido de autobús
CAPUFE	Federal Roads and Bridges	Caminos y Puentes Federales
CAT	total annual cost of credit	costo anual total de crédito
CCT	conditional cash transfer	transferencia condicional en efectivo
CDDRS	District Councils of Rural Sustainable Development	Concejos Distritales de Desarrollo Rural Sustentable

CECOBAN	Banking Clearing Center	Centro de Compensación Bancaria
CEDRS	State Councils of Rural Sustainable Development	Consejos Estatales de Desarrollo Rural Sustentable
CENACE	National Center of Energy Control	Centro Nacional de Control de Energía
CENDI	Child Development Centers	Centros de Desarrollo Infantil
CENEVAL	National Center for the Evaluation of Higher Education	Centro Nacional de Evaluación para la Educación Superior, A.C.
CFC	Federal Competition Commission	Comisión Federal de Competencia
CFE	National Electric Company	Comisión Federal de Electricidad
CIDRS	Interministereal Commission for Rural Sustainable Development	Comisión Intersecretarial para el Desarrollo Rural Sustentable
CITES	Campus Information Technologies and Educational Services	Tecnologías de Información de Campus y Servicios Educativos
CMDDS	Countermeasure Decoy Dispensing System	Sistema de Distribución de Señuelo de Medida Preventiva
CNA	National Water Commission	Comisión Nacional del Agua
CNBV	National Banking and Securities Commission	Comisión Nacional Bancaria y de Valores
CNSF	National Insurance and Bonds Commission	Comisión Nacional de Seguros y Fianzas
COFEMER	Federal Regulatory Improvement Commission	Comisión Federal de Mejora Reguladora
COFEPRIS	Federal Commission for Protection from Sanitary Risks	Comisión Federal para la Protección contra Riesgos Sanitarios
COFETEL	Federal Telecommunications Commission	Comisión Federal de Telecomunicaciones
COFUPRO	Coordinator of Produce Foundations	Coordinadora Nacional de las Fundaciones Produce
CONACYT	National Council on Science and Technology	Consejo Nacional de Ciencia y Tecnología
CONAFE	National Council for Education Development	Consejo Nacional para el Fomento Educativo
CONAFOVI	National Housing Commission	Comisión Nacional de Fomento a la Vivienda
CONAGUA	National Water Commission	Comisión Nacional del Agua
CONASUPO	National Company for Popular Subsistence	Compañía Nacional de Subsistencias Populares

CONAVI	National Housing Commission	Comisión Nacional de Vivienda
CONAZA	National Commission on the Arid Zones	Comisión Nacional de Zonas Áridas
CONEVAL	National Council for Evaluating Social Development Policy	Consejo Nacional de Evaluación de la Política de Desarrollo Social
CONSAR	Mexican Commission for the Retirement Savings Systems	Comisión Nacional de Sistemas de Ahorro para el Retiro
COPD	chronic obstructive pulmonary disease	enfermedad pulmonar obstructora crónica
COPLADES	State Development Planning Committee	Comité de Planeación y Desarrollo Estatal
CRE	Regulatory Commission for Energy	Comisión Reguladora de Energía
DA	Development agency	agencia de desarrollo
DB	Development bank and fund	Banco y fondo de desarrollo
DGEI	General Directorate of Indigenous Education	Dirección General de Educación Indígena
DSL	Digital Subscriber Line	Línea de Suscriptor Digital
ECD	early childhood development	desarrollo infantil temprano
ECMT	European Conference of Ministers of Transport	Conferencia Europea de Ministros de Transporte
EFT	Electronic bank transfer	Transferencia bancaria electrónica
EMBRATEL	Brazilian Telecommunications Enterprise	Empresa Brasileña de Telecomunicaciones S.A.
ENEU	National Urban Employment Survey	Encuesta Nacional de Empleo Urbano
ENHRUM	Mexico Rural Households National Survey	Encuesta Nacional a Hogares Rurales de México
ENIGH	National Household Survey on Income and Expenditure	Encuesta Nacional de Ingreso y Gasto de los Hogares
ESMAP	Energy Sector Management Assistance Program	Programa de Ayuda de Gestión del Sector de Energía
EU	European Union	Unión Europea
FAIS	Social Infrastructure Transfers Fund	Fondo de Aportaciones de Infraestructura Social
FAPPA	Fund for the Support to Productive Projects	Fondo de Apoyo a Proyectos Productivos

FARAC	Fund for Rehabilitation of Concessioned Toll Roads	Fideicomiso de Apoyo al Rescate de Autopistas Concesionadas
FDI	Foreign Direct Investment	Inversión Extranjera Directa
FIAS	Foreign Investment Advisory Service	Servicios de Asesoría en Inversión Extranjera
FIFONAFE	National Trust Fund for the Development of the Ejido Sector	Fideicomiso del Fondo Nacional para el Fomento Ejidal
FINFRA	Infrastructure Investment Fund	Fideicomiso para la Inversión en Infraestructura
FIRA	Agriculture Trust Funds	Fideicomisos Instituidos en Relación con la Agricultura
FOIA	U.S. Freedom of Information Act	Ley de Libertad de Información
FOMMUR	Fund for Micro Financing of Rural Women	Fondo de Microfinanciamiento para Mujeres Rurales
FONAES	National Fund to Support Enterprise Solidarity	Fondo Nacional para el Apoyo de las Empresas Sociales
FONART	National Fund for the Promotion of the Local Crafts	Fondo Nacional para el Fomento de las Artesanías
FONHAPO	Low-Income Housing Fund	Fideicomiso del Fondo Nacional de las Habitaciones Populares
FOVISSSTE	Housing Fund for the Social Security Services Institute of the Public Workers	Fondo de la Vivienda del Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado
FSAP	Financial Sector Assessment Program	Programa de Evaluación del Sector Financiero
FTA	Authentic Workers' Front	Frente Auténtico del Trabajo
FTJER	Land Fund and Young Rural Entrepreneurs Program	Fondo de Tierras y Jóvenes Emprendedores Rurales
FUMIAF	Fund for Agricultural and Forestry Research	Fundación Mexicana para la Investigación Agropecuaria y Forestal
GATT	General Agreement on Tariffs and Trade	Acuerdo General sobre Comercio y Aranceles
GD	groundwater	agua subterránea
GDF	Global Development Finance	Flujos Mundiales de Financiamiento para el Desarrollo
GDP	gross domestic product	producto interno bruto
HABITAT	SEDESOL Housing Program	SEDESOL Programa de Vivienda
HCB	hexachlorbenzene	hexaclorobenceno

ICT	Information and Communications Technology	Tecnologías de Información y Comunicaciones
IDB	Inter-American Development Bank	Banco Interamericano de Desarrollo
IFAI	Federal Institute of Access to Public Information	Instituto Federal de Acceso a la Información
IFE	Federal Electoral Institute	Instituto Federal Electoral
IGR	Institutional and Governance Review	Revisión Institucional y de Gobernabilidad
IMCO	Mexican Institute for Competitiveness	Instituto Mexicano para la Competitividad
IMF	International Monetary Fund	Fondo Monetario Internacional
IMR	infant mortality rate	tasa de mortalidad infantil
IMSS	Mexican Institute for Social Security	Instituto Mexicano del Seguro Social
INEA	National Institute of Adult Education	Instituto Nacional de Educación para los Adultos
INEE	National Institute for the Evaluation of Education	Instituto Nacional para la Evaluación de la Educación
INEGI	National Institute of Geographic and Informatics Statistics	Instituto Nacional de Estadística, Geografía e Informática
INFONAVIT	Institute of the National Housing Fund for the Workers	Instituto del Fondo Nacional de la Vivienda para los Trabajadores
INIFAP	National Institute for Forest and Agricultural Research	Instituto Nacional de Investigaciones Forestales y Agropecuarias
IPAB	Institute for the Protection of Bank Savings	Instituto para la Protección del Ahorro Bancario
ISO	International Organization for Standardization	Organización Internacional para la Estandarización
ISSSTE	Institute for the Social Security of State Workers	Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado
IT	information technology	tecnología de información
JTPA	Job Training Partnership Act	Ley para la Asociación de la Capacitación para el Trabajo
LAC	WB Latin America and the Caribbean Region	BM Región de América Latina y el Caribe
LAU	Exclusive Environmental License	Licencia Ambiental Única
LDRS	Sustainable Rural Development Law	Ley de Desarrollo Rural Sustentable

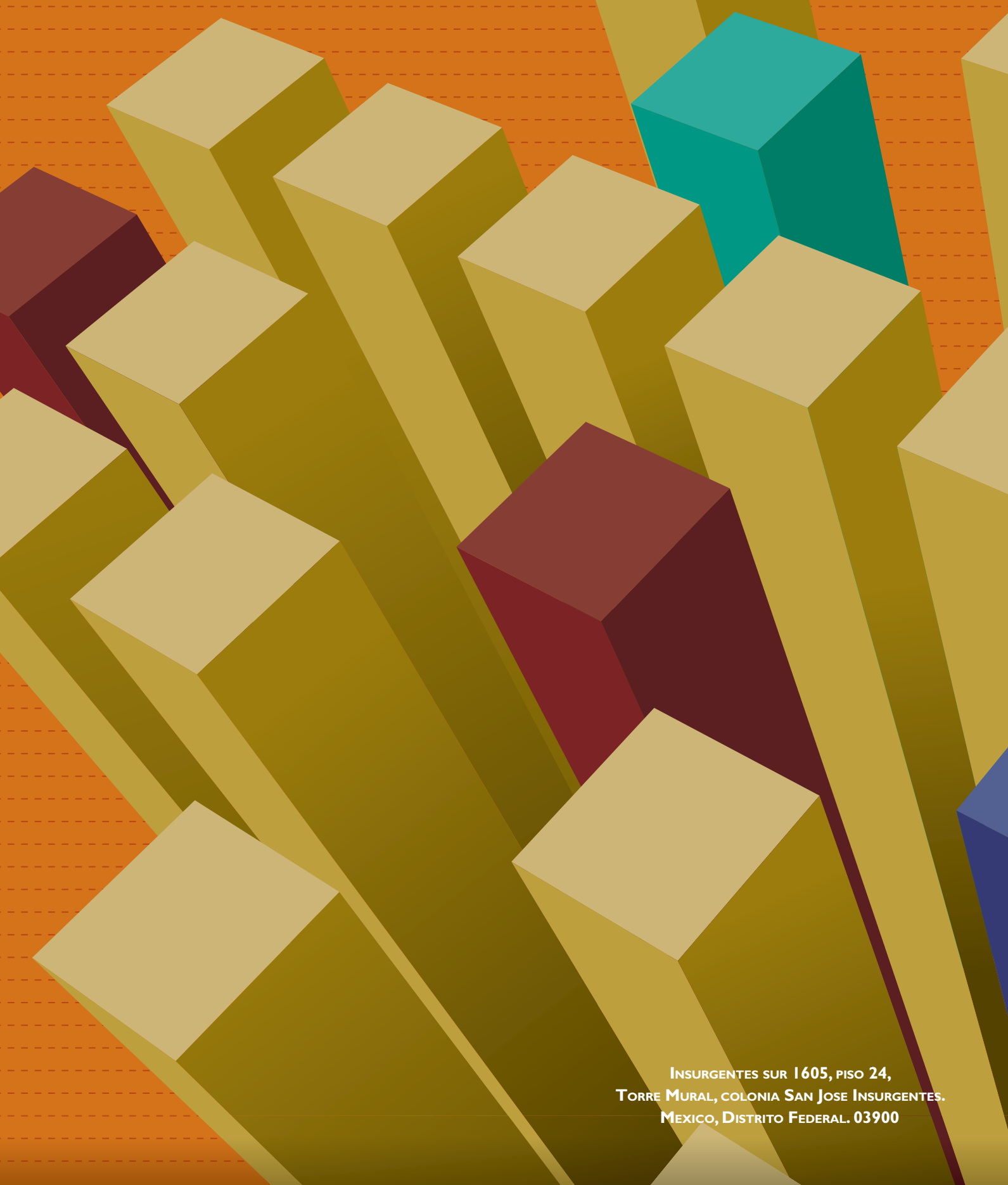
LFC	Central Mexico's Energy Company	Luz y Fuerza del Centro
LFPC	Federal Consumer Protection Law	Ley Federal de Protección al Consumidor
LFT	National Labor Law	Ley Federal del Trabajo
LICONSA	CONASUPO Industrial Milk	Leche Industrializada CONASUPO
LLL	lifelong learning	aprendizaje de toda la vida
LNG	Liquefied natural gas	gas natural licuado
LPG	Liquid Petroleum Gas	Gas Líquido de Petróleo
LPI	Logistics Perception Index	Índice logístico de percepción
M&E	Monitoring and evaluation	Monitoreo y evaluación
M&O	Maintenance and operations	Mantenimiento y operaciones
MAROP	Pension saving scheme	Mecanismo de Ahorro para el Retiro de Oportunidades
mbd	millions of barrels daily	millones de barriles diariamente
mboed	million barrels of oil equivalent daily	millones de barriles de aceite equivalente diariamente
MMBtu	million British thermal unit	millones de unidad termal inglesa
MMcfd	million cubic feet per day	Millones de pies cúbicos por día
MOF	Microsoft Operations Framework	Estructura de Operaciones de Microsoft
MPG	guaranteed minimum pension	Pensión mínima garantizada
MSC	Multiple Services Contracts	Contratos de Servicios Múltiples
MW	megawatt	megavatio
MXN	Mexican New Pesos	Nuevos pesos mexicanos
MXP	Mexican Peso	Peso mexicano
NAFIN	National Financing	Nacional Financiera

NAFTA	North American Free Trade Agreement	Tratado de Libre Comercio de América del Norte (TLCAN)
NCSC	National Commission of State Courts	Comisión Nacional de Cortes Estatales
NDP	National Development Plan	Plan Nacional de Desarrollo
NHS	National Health Service	Servicio Nacional de Salud
OECD	Organization for Economic Cooperation and Development	Organización de Cooperación y Desarrollo Económicos
OTC	Occupational Training Center	Centro de Entrenamiento Ocupacional
PAASFJR	Support Program to Access the Rural Financial System	Programa de Apoyo para el Acceso al Sistema Financiero Rural
PAC	Program to Support Training	Programa de Apoyo a la Capacitación
PAHNAL	National Savings Council	Patronato del Ahorro Nacional
PAN	National Action Party	Partido Acción Nacional
PAPIR	Program for the Support of Rural Investment Projects	Programa de Apoyo a Proyectos de Inversión Rural
PASIS	social assistance pension	pensiones asistenciales
PATMIR	Regional Projects for Technical Assistance to the Rural Micro-financing	Proyecto Regional de Asistencia Técnica al Microfinanciamiento Rural
PAYGO	pay-as-you-go system	Pago según se recibe
PCBs	polychlorinated biphenyls	Bifenil policlorinado
PDIA	Environmental Institutional Development Program	Programa de Desarrollo Institucional Ambiental
PDVSA	Venezuelan State Oil Company	Petróleos de Venezuela S.A.
PEC	Quality School Program	Programa Escuelas de Calidad
PEMEX	Mexican Petroleum	Petróleos Mexicanos
PENSIONISSTE	National Civil Servants' Pension Fund	Sistema de Pensiones del Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado
PIARC	Permanent International Association of Road Congresses	Asociación Internacional Permanente de Congresos de Carreteras
PIDIREGAS	Projects with Deferred Impact in the Budgetary Registry	Proyectos de Inversión Diferida en el Registro del Gasto

PISA	Program for International Student Assessment	Programa Internacional de Evaluación de Estudiantes
PNR	National Revolutionary Party	Partido Nacional Revolucionario
POS	Point-of-service	Punto de servicio
PPI	private participation in infrastructure	Participación privada en infraestructura
PPIAF	Public Private Infrastructure Advisory Facility	Mecanismo Consultivo sobre Infraestructuras Públicas y Privadas
ppm	portable pixel map	mapa de píxel portátil
PPP	Purchasing power parity	Paridad del poder adquisitivo
PREM	Poverty Reduction and Economic Management	Departamento Económico de Reducción de Pobreza y Gestión Económica
PRI	Institutional Revolutionary Party	Partido Revolucionario Institucional
PROCEDE	Program for Certification of Ejidal Rights	Programa de Certificaciones de Derechos Ejidales y Titulación de Solares Urbanos
PROCESAR	Operator of the National Data Base	Operador de la Base Nacional de Datos
PROCREA	Credit Program for Administration	Programa de Crédito para la Administración
PRODESCA	Rural Development Program Sub-program of Development	Programas de Desarrollo de Capacidades en el Medio Rural
PROFECO	Federal Prosecutor for Consumers	Procuraduría Federal del Consumidor
PROFEMOR	Program for the Strengthening Sub-programs of Rural Businesses and Organizations	Programa de Fortalecimiento de Empresas y Organización Rural
PROMUSAG	Women Program in the Agrarian Sector	Programa de la Mujer en el Sector Agrario
PRONABES	The National Scholarship Program for Tertiary Education	Programa Nacional de Becas para la Educación Superior
PRONASOL	National Solidarity Program	Programa Nacional de Solidaridad
PROSAP	Support Programs to the Social Organizations of Agrobusiness and Fishing Grounds	Programa de Apoyo a Organizaciones Sociales Agropecuarias y Pesqueras
PSBR	public sector borrowing requirement	necesidades de financiamiento del sector público
PYME	Small and Medium Enterprise	Pequeña y Mediana Empresa
R&D	Research and development	Investigación y Desarrollo

RAN	National Agrarian Register	Registro Agrario Nacional
REPSS	State System for the Social Protection for Health	Regímenes Estatales de Protección Social en Salud
RICYT	Ibero-American Network of Science and Technology Indicators	Red Iberoamericana de Indicadores de Ciencia y Tecnología
RUD	Rural urban development	Desarrollo Rural y Urbano
S&T	science and technology	Ciencias y Tecnología
SACPS	Society of Saving and Popular Credit	Sociedades de Ahorro y Crédito Popular
SAGARPA	Agricultural Ministry of Mexico	Secretaria de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación
SAMARNAT	Secretariat of the Environment and Natural Resources	Secretaría de Medio Ambiente y Recursos Naturales
SAPI		Sociedad Anónima Promotora de Inversión
SARE	Sustainable Agriculture Research and Education	Investigación y Educación Sostenidas de la Agricultura
SATI	Comprehensive Technical Service	Servicios de Asistencia Técnica Integral
SBM	school based management	gestión basada en la escuela
SCT	Ministry of Communications and Transport	Secretaría de Comunicaciones y Transportes
SEA	strategic environmental assessment	evaluación ambiental estratégica
SECTUR	Federal Tourism Secretariat	Secretaria Federal de Turismo
SENASICA	National Health, Safety and Food Quality Service of Mexico	Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria
SENER	Ministry of Energy	Secretaria de Energía
SEP	Secretariat of Public Education	Secretaria de Educación Pública
SHCP	Mexican Department of the Treasury	Secretaria de Hacienda y Crédito Público
SHF	Federal Mortgage Society	Sociedad Hipotecaria Federal
SICAT	Work Training System	Sistema de Capacitación para el Trabajo
SIEBAN	System of Stimuli to the Bank	Sistema de Estímulo hacia los Bancos

SIESUC	System of Stimulus to the Credit Unions	Sistema de Estímulo hacia las Uniones de Crédito
SME	Small and Medium Enterprise	Pequeña y Mediana Empresa
SNTE	National Union of Education Workers	Sindicato Nacional de Trabajadores de la Educación
SOFES	Society to Promote Higher Education	Sociedad de Fomento a la Educación Superior
SOFOLAS	Financing Societies with Limited Purposes	Sociedades Financieras de Objeto Limitado
SPEI	Strategic Plan for Economic Integration	Plan Estratégico para la Integración Económica
SPS	Sanitary and Phytosanitary	Sanitario y Fitosanitario
SRA	Secretariat of Agrarian Reform	Secretaría de la Reforma Agraria
SSA	Secretariat of Health	Serretaría de Salud
SSF	Family Health Insurance	Seguro de Salud para la Familia
TELEBRAS	Brazilian Telecommunications Company	Telecom Brasileiras S.A.
TEU	Twenty-feet Equivalent Unit	Unidad equivalente a veinte pies
TFP	Total factor productivity	Factor total de productividad
TRQs	tariff rate quotas	cuota de tasa arancelaria
TSAP	Targeted Social Assistance Pension	Pensión de Asistencia Social Dirigida
VAT	Value Added Tax	Impuesto al Valor Agregado
WB	World Bank	Banco Mundial
WEF	World Economic Forum	Foro Económico Mundial



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