PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE

Report No.: PIDA519

Project Name	Second Phase Innovation for Competitiveness APL (P126838)
Region	LATIN AMERICA AND CARIBBEAN
Country	Mexico
Sector(s)	General industry and trade sector (40%), Tertiary education (30%), Central government administration (20%), Sub-national government administration (10%)
Lending Instrument	Adaptable Program Loan
Project ID	P126838
Borrower(s)	Secretaria de Hacienda y Credito Publico
Implementing Agency	CONACYT
Environmental Category	B-Partial Assessment
Date PID Prepared	05-Sep-2012
Estimated Date of Appraisal Completion	14-Sep-2012
Estimated Date of Board Approval	25-Oct-2012
Decision	

I. Project Context

Country Context

After the global financial crisis of 2008, Mexico experienced a deep but brief recession in 2009. Since then, Mexico's growth has held up reasonably well despite turbulence in Europe, in part as a result of the slow but steady recovery in the United States. RealGDP growth expanded 5.4 percent in 2010, moderating to 4.0 percent in 2011. Current forecasts project Mexico's growth at 3.9 percent in 2012 and 3.6 percent in 2013 . Although Mexico's recovery remains linked to that of the United States, domestic demand has strengthened, driven by labor market improvements, credit growth and infrastructure investment.

While short-term policy caution and attention is still needed, a focus on long-term policy reforms is essential for Mexico to achieve its growth potential. Mexico's current performance is in great part due to cautious macroeconomic policy, which has continued to strike a prudent balance between supporting economic activity and rebuilding buffers. Monetary policy remains accommodative, and the pace of fiscal consolidation has been calibrated to avoid undermining the recovery. Looking forward, the policy challenge for Mexico is how to unleash its growth potential and employment generation needed to address still high poverty levels, while tackling long-term issues such as the projected decline in the ratio of oil revenues to GDP, age-related pressures on social spending and the difficult security situation. To boost growth, Mexico needs to press ahead with structural reforms to increase productivity and promote investment .

Mexico's historic growth has been modest relative to the country's potential. Annual per capita growth averaged 0.9 percent over the 1981-2008 period, well below the OECD average and that of other emerging economies (Chile) . Well-targeted social programs have helped the country to decrease poverty levels by 15 percentage points since 1998. However, 46.2 percent of Mexicans still lived below the poverty line in 2010, highlighting the need to considerably raise growth rates in order to make more significant advances in poverty reduction. Moreover, regional disparities remain large: income per capita in Mexico City is more than 5 times greater than that in the southern state of Chiapas, while poverty levels in the more prosperous northern state of Nueva León are only about a quarter that of Chiapas .

Increasing productivity and moving the economy to higher value added activities remains key to raising growth rates and decreasing poverty levels. Much of the gap in growth between Latin America and developed countries over the past 50 years has been argued to come from the region's low productivity levels and growth rates . Pagés (2009) for example, shows that Mexico's cumulative TFP gap relative to the US during the period 1960-2005 grew by 31 percent. Growth in Mexico has been mostly driven by accumulations in capital and labor. The contribution of total factor productivity (TFP) to overall Mexican economic growth was negative during the 1982-1995 period and small since then (1996-2010, see Figures 1 and 2).

Figure 1 Contributions to Growth in Mexico 1961-2010 (see attachment)

Figure 2 TFP Index evolution overtime for Mexico and various countries (see attachment)

To increase its productivity, Mexico needs to improve its national capabilities to innovate, generating knowledge that can be transformed into wealth and higher standards of living. Economic research and empirical evidence suggest that sustained productivity growth is contingent upon increasing knowledge generation and absorption . Investments in research and development have been shown to have positive and significant effects on total factor productivity (TFP), while activities aimed at increasing the supply of knowledge through investments in human capital also increase productivity of workers and industries and foster economic growth . An effective innovation system can provide the resources, incentives and institutional infrastructure needed to facilitate and stimulate the generation, diffusion and acquisition of knowledge in an economy. While Mexico has made important strides in establishing and improving its national innovation system, challenges remain .

II. Sectoral and Institutional Context

Difficulties in adopting new or better technologies limits the ability of Mexican firms, particularly SMEs, to move into higher value added activities. While Mexico has been able to develop a few pockets of excellence and high productivity associated with multinationals operating in high-tech and higher middle-tech industries , these pockets of excellence largely operate as enclaves, with few linkages to the rest of the economy . Moreover regions hosting these enclaves still compete on the basis of cheaper labor costs (albeit of higher skill level than the traditional

maquiladoras) and proximity to the US market, and not on their capacity to innovate or upgrade their technological base. Illustrating this point, the percentage of firms that use technology licensed from foreign companies is lower in Mexico (10.9 percent) than in Brazil and Chile for example (13.1 percent), and much lower than that in high income OECD countries (18.3 percent) .

The country also has difficulties creating new business opportunities that are based on knowledge or solving productions or product issues that depend on research and development work. While Mexico's private sector expenditures on R&D has risen over the last decade (see Figure 1, Annex 6), it remains quite low in comparison to other comparator countries. Overall R&D expenditures (public and private) in Mexico represented 0.39 percent of GDP in 2009 , well below other regional countries such as Argentina (0.59 percent) and Brazil (1.18 percent), while even farther from top innovation countries such as Israel (4 percent) or Sweden (3.4 percent). As a consequence of this low innovation input, patents granted to Mexican nationals by the U.S. Patent Office have not evolved much since the late 1990s and remain at low levels (Figure 2, Annex 6), while patents granted to many OECD countries and select emerging markets surged during this period. Between 2000 and 2008, for example, China's more than tripled and Korea's more than doubled. Mexico's stagnation in patenting occurred despite an increase in R&D, which is symptomatic of the weak connectivity between research centers and the productive sector.

Intermediary agents to facilitate the process of commercializing new discoveries are largely missing in Mexico, making the overall innovation system less effective at linking academia with the private sector. Up until recently, technology commercialization was not a priority, and very few universities and research centers engaged in any efforts of the kind. Incentives for doing so were weak (especially incentives around intellectual property), specialized skills were largely not available and funding was extremely limited . Amendments to the Science and Technology Law in 2009 began to improve the incentives structure, establishing the legal framework for the commercialization of research through licensing and IP based start-ups for CONACYT's public technology centers . Other initiatives to facilitate research commercialization have targeted the early-stage funding of technology-based companies, as well as the establishment of consortia to implement public-private research projects. CONACYT has also recently began to support the implementation of technology transfer offices (also referred to as knowledge transfer offices), but this initiative is at an initial stage, and these offices will require substantial institutional strengthening and support during start-up to become effective contributors in the commercialization process.

Current government efforts to increase the supply of S&T researchers need to be sustained, while the introduction of better monitoring and evaluation of scholarship programs can help to improve targeting of these programs. The number of researchers has been steadily increasing over the last decade, a result of sustained government efforts to fund the training and education in technical areas (Figure 5, Annex 6). However, the number of Mexican researchers per labor force is still well below that of some comparator countries, suggesting that this efforts need to be enhanced (Figure 6, Annex 6). Moreover, recent assessments also point to the need of improving monitoring and evaluation of beneficiaries from scholarship programs to ensure program adjusts to evolving structure of demand for skilled workers. CONACYT has launched a monitoring system for its scholarship program, but this needs to be improved and consolidated.

The institutional capacity and governance structure of Mexico's innovation system has improved, but more remains to be done . During the past decade, the Government of Mexico has made steady progress towards enhancing Mexico's innovation system as part of a broader strategy to increase the country's competitiveness. CONACYT has followed these developments, creating several programs specifically targeted at promoting business innovation and greater linkages between the academic community and the private sector and piloting programs to spur the genesis of technology-based companies. Moreover, in recent years, CONACYT has begun to conduct impact evaluations of a few selected programs. However, a more comprehensive independent evaluation of the impact of STI policies and the consistency of science and innovation policies in the country as a whole has not taken place. These incipient STI evaluation efforts need to be sustained, broadened, systematized and planned more strategically, so as to make the most efficient use of scarce resources devoted to M&E. Furthermore, results from evaluations need to make their way back into the design of new policies and instruments, in the fine tuning of existing initiatives and in the setting aside of instruments that do not work, which will improve the effectiveness of the overall innovation system.

Institutional challenges to design, monitor and evaluate innovation policies are even more acute at the state level, given the large disparities in capabilities that exist among Mexican states. Data from FOMIX shows that almost 30% of its resources have gone to 3 states out of a total of 32, suggesting that states' capacities to take advantage of such resources may be limited. This was corroborated by an OECD assessment of innovation policy in Mexico (OECD 2009b), which found that the use of national programs like FOMIX is affected by the administrative capacities of local governments to, for example, develop and submit proposals. This impacts not only the number of proposals being submitted by lagging states but particularly the quality of the proposals. Therefore, improving capacity at the local level becomes increasingly important. It is recognized that local governments have a key role to play in innovation policy making, due to the localized nature of knowledge, particularly tacit knowledge, and the importance of social interactions and the institutional context in which this knowledge is produced . The focus for public policy, as the OECD assessment highlights, should be on using existing scientific and technological capabilities (and improving them where needed) to address local economic and social challenges more effectively and to take full advantage of local natural and human resources available. Given the great heterogeneity of capacities and opportunities in Mexico, many states currently lack such capabilities and are in danger of becoming even more marginalized in an increasingly knowledge intensive world.

Public Disclosure Copy

III. Project Development Objectives

The second phase project development objective is to strengthen the capacity of CONACYT and state level STI institutions to formulate innovation policies and to improve the effectiveness of the Borrower's Innovation System.

This will be achieved by:

- Strengthening states' capacities to formulate, implement and evaluate policies and programs to foster innovation;
- Continuing to support the formation and supply of a qualified and skilled labor force in the fields of science and technology;
- Supporting the establishment and development of intermediary agents to accelerate the process of technology transfer to the productive sector; and
- Strengthening CONACYT's institutional capacity to implement a multi-annual, strategic plan to monitor and evaluate its portfolio of projects and programs.

IV. Project Description

Component Name

Strengthening Subnational Innovation Systems

Formation of Advanced Human Capital

Accelerating Technology Transfer

Strengthening CONACYT's Planning, Monitoring and Evaluation System

V. Financing *(in USD Million)*

For Loans/Credits/Others	Amount
Borrower	0.00
International Bank for Reconstruction and Development	100.00
Total	100.00

VI. Implementation

Institutional and implementation arrangements will be continued from the previous Innovation for Competitiveness Project, as they were rated satisfactory. CONACYT is the implementing agency through its Project Coordination Unit (PCU), in coordination with the relevant Directorates of CONACYT: Regional Development Directorate, for Component 1; Scholarship and Graduate Studies Directorate, for Component 2; Technology Development and Innovation Directorate, for Component 3; and Planning and International Cooperation Directorate, for Component 4. The PCU will provide the administrative support to ensure full implementation of each of the project activities. Technical leadership for each component will be provided by the above mentioned Directorates.

The PCU will be headed by a coordinator, assisted by a procurement officer and a financial management officer. Additional supporting staff may be hired if needed. Overall responsibility for coordinating monitoring of project indicators will reside with the PCU, in close collaboration with the Planning and International Cooperation Directorate. Responsibilities for collecting data for project indicators will rest with each Directorate, according to activities supported and indicators needed, as defined in the Projects Results Framework (Annex 1, attachment).

Another key responsibility of the PCU will be to coordinate the project's communication strategy, with the support of the Directorates involved. This strategy involves the dissemination of the overall project, the different activities supported, events related to the project, and any information related to procurement, fiduciary and safeguards issues.

The PCU is housed within the Directorate for Administration and Finances, Dirección Adjunta de Administración y Finanzas, which reports directly to CONACYT's General Director, and the PCU has excellent working relationships with the different CONACYT's Directorates. CONACYT, and its PCU, have demonstrated adequate capacity for project implementation, including satisfactory interactions with other important Government entities, such as NAFIN and the Ministry of Finance (SHCP, Secretaría de Hacienda y Crédito Público). For the APL1, CONACYT's performance on financial management was satisfactory; and its performance on procurement was satisfactory for most of the project but rated moderately satisfactory during the last semester. NAFIN will remain the financial agent for the proposed second phase of the APL, providing continuity to the arrangements developed during the first phase.

Implementation of activities 1.3, 3.1 and 3.2 will be done through FORDECYT for the first activity and through FOINS for the last two. These are two trust funds managed by CONACYT that operate in a similar way. Both have a Technical and Administrative Committee (CTA, in its Spanish acronym), presided by CONACYT's Director General. The complete composition of these committees is presented in the section Project Institutional and Implementation Arrangements, in Annex 3 (attachment), along with a schematic diagram illustrating the basic operation of both FORDECYT and FOINS.

Semi-annual review meetings will be chaired by Direccion General in which project indicators and main results will be presented by the PCU and all four Directorates involved in project implementation will be present to discuss project implementation. The objective of these meetings is to ensure close monitoring of project implementation at the highest level within CONACYT and to promote synergies across the Directorates on issues, challenges and opportunities for collaboration that project activities will likely generate.

Public Disclosure Copy

VII. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04		X
Forests OP/BP 4.36		X
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11		X
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12		X
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

VIII. Contact point

World Bank

Contact: Cristian Quijada Torres
Title: Private Sector Development Spec.
Tel: 458-8738
Email: cquijadatorres@worldbank.org

Borrower/Client/Recipient

Name: Secretaria de Hacienda y Credito Publico

Contact: Alexandra Alarcón Cisneros
Title: SUBDIRECTOR PARA AMERICA DEL NORTE
Tel: 55-3688-2643
Email: alexandra_alarcon@hacienda.gob.mx

Implementing Agencies

Name: CONACYT
Contact: Hersch Goldbard
Title: Project Coordinator
Tel: 55-5322-7700
Email: egoldbard@conacyt.mx

IX. For more information contact:

The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-4500
Fax: (202) 522-1500
Web: http://www.worldbank.org/infoshop

Public Disclosure Copy