

**PROGRAM INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.: AB5738

Operation Name	Framework for Adaptation to Climate Change in the Water Sector Development Policy Loan
Region	LATIN AMERICA AND CARIBBEAN
Sector	General water, sanitation and flood protection sector (100%)
Project ID	P120134
Borrower(s)	GOVERNMENT OF MEXICO
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1. Country and Sector Background

Climate change will be the most serious environmental problem that humankind will face in the 21st century; it threatens all countries, but developing countries are the most vulnerable. Preliminary estimates suggest that developing countries would bear some 75 to 80 percent of the costs of damages caused by the changing climate. Climate change impacts development to its roots and in its many dimensions. It threatens to deepen vulnerabilities, erode hard-won gains, and seriously undermine prospects for development. Climate change directly affects the water cycle and, through it, the quantity and quality of water resources available to meet human and environmental demands. It can lead to an increase in the frequency and intensity of floods and droughts. Rising sea levels have serious effects on coastal aquifers which are a major source of water supply systems, and higher water temperatures and changes in extremes can exacerbate many forms of water pollution. Water supply reliability, health, agriculture, energy, and aquatic ecosystems will feel the impact of these changes to the water cycle.

Mexico is particularly vulnerable to climate change because its impact exacerbates the existing severe constraints in water resource management. Surface and groundwater in the country suffer heavily from overexploitation and contamination due to an inefficient use of water in the context of water scarcity. In 1955, water availability in Mexico was 11,500 cubic meters (m³) per person per year. By 2005, this amount decreased to 3,822m³. This decrease in availability was caused primarily by non-climatic reasons: population growth and economic development. Projections, based solely on population growth, estimate water availability to decrease further to 3,610m³ by 2012, 3,285m³ by 2030, and 3,260m³ by 2050. In addition, the persistence of inefficient agricultural irrigation practices, overexploitation of aquifers, and the

inadequate treatment of municipal and industrial wastewater will increase the vulnerability of water resources. Climate change impacts will only worsen current conditions.

Building on the National Development Plan 2007-2012 (*Plan Nacional de Desarrollo, PND*), the country developed a National Climate Change Strategy (*Estrategia Nacional de Cambio Climático, ENACC*), in 2007. In order to put into operation the Climate Change aspects of the PND, as stated in the ENACC, the Government of Mexico (GoM) launched the Climate Change Especial Program (*Programa Especial de Cambio Climático, PECC*), in 2009; the latter is a binding document for the public sector that seeks to engage the private sector and civil society to achieve the main goal of halving the country's emissions by 2050.

Water is a key pillar in Mexico's Plans and Programs, and it is considered one of the main issues to tackle under almost every climate scenario modeled. The sector is committed to contribute to the GoM's mitigation goals through reduced energy consumption derived from savings and more efficient use (that is, through the regulation of water-saving technologies and appliances), conservation of riparian corridors (through ecological flows regulation), and watershed management (through national and local payment for environmental services). Most important, the PND advances adaptation measures aimed at managing both supply and demand, improving infrastructure, and increasing water security in the face of climate change.

2. Operation Objectives

This Development Policy Loan (DPL) will support the GoM's efforts to ensure adaptation to climate change in the water sector, contributing to long-term sustainable growth and protecting the most vulnerable populations. Reduced water availability and poor water quality are two of the main factors affecting future growth and development in Mexico. Key to addressing core development challenges is the enactment of measures to adapt to climate change whose aim is ensuring proper water resources management through appropriate regulations, norms, institutional reforms, and financial mechanisms. The proposed operation comprises two policy areas that are detailed below. They are: (a) Strengthening the Institutional Framework and Monitoring Capacity in Integrated Water Resources Management; and (b) Establishing the Normative and Financial Framework to Mainstream Adaptation to Climate Change in Water Programs.

The objective of the proposed operation is to support the government's efforts aimed at strengthening the institutional framework and monitoring capacity in integrated water resources management as well as mainstreaming adaptation to climate change in water programs. The proposed DPL supports the government's policy commitment to adaptation to climate change in the water sector, including the allocation of institutional and financial resources and strengthening of monitoring and evaluation capacity.

The prior actions established below capture the two-level nature of the government's program and the Adaptation to Climate Change in the Water Sector DPL (see Box 1). This is achieved first by recognizing the importance of the over-arching framework established through the GoM's policy and institutional framework in Integrated Water Resources Management (including its climate change adaptation agenda in the sector), and second by setting up the required norms, operating rules and financial instruments that provide the

necessary instrument to ensure the proper implementation of the institutional and policy framework. These prior actions, taken as a whole, put Mexico on the path to achieving its ambitious climate change agenda with regard to adaptation in the water sector.

Box 1: Overview of Proposed Operation's Components and Prior Actions

The government has agreed upon and implemented the following prior actions:

Policy Area 1: Strengthening the Institutional Framework and Monitoring Capacity in Integrated Water Resources Management

1. Mexico has strengthened its commitment to climate change in the water sector by submitting the Fourth Communication to the United Nations Framework Convention on Climate Change (UNFCCC).
2. The National Water Commission (*Comisión Nacional del Agua*, CONAGUA) has strengthened the institutional framework for Integrated Water Resource Management (IWRM) by delegating increased responsibility to 18 River Basin Councils to oversee, plan and manage projects and programs established in Watershed Management Plans.
3. CONAGUA has strengthened the institutional framework for IWRM by setting up two water banks in order to foster the sustainable management and efficient administration of water resources.

Policy Area 2: Mainstreaming Adaptation to Climate Change in Water Programs

4. CONAGUA has issued two norms to provide regulatory instruments to promote the conservation of groundwater resources.
5. CONAGUA has incorporated in the Wastewater Treatment Funding Program (*Fondos Concursables*) criteria promoting the recharge of aquifers and water reuse for conservation of groundwater resources.
6. The National Forestry Commission (*Comisión Nacional Forestal*, CONAFOR) has issued operating rules for the Special Program for the Conservation and Protection of Microwatersheds in priority areas to promote reduction of soil erosion, reforestation and forest protection.
7. CONAGUA has strengthened the protection of overexploited aquifers by means of its programs to improve the water productivity of irrigation.

3. Rationale for Bank Involvement

Mexico and the World Bank Group have had a longstanding partnership that encompasses the delivery of the full menu of financial, knowledge, and coordination and convening services. The Country Partnership Strategy (CPS) for Mexico,¹ which was discussed by the Board in April 2008, built on the Mexican authorities' desire to maintain a strong financial and knowledge-based relationship with the Bank, focusing on flexibility and innovation in responding to the Partner's development challenges and borrowing needs with higher levels of flows dependent upon evolving market conditions. The aim of the CPS is to provide a flexible framework for World Bank Group support to Mexico. The strategy is based on a streamlined approach to lending that is in line with the priorities set in the PND 2007-2012.

¹ Report No. 42846-MX, March 4, 2008.

Developing Infrastructure and Assuring Energy Security and Environmental Sustainability have become a major part of the CPS program for both reactivating the economy and putting it on an environmentally sustainable trajectory. The GoM has accelerated its reform program during the crisis and climate change adaptation is now a major policy objective of Mexico. Beyond lending, the broad range of Bank assistance in this area, including grants, knowledge services and convening activities, is being coordinated through Technical Assistance Programs with the Environment, Transport, Energy and Water sectors.

The proposed operation, which addresses Adaptation to Climate Change in the Water Sector, is consistent with national priorities. Mexico faces critical and urgent water problems. The unsustainable use of water resources contributes to widening the gap between the wealthy and the poor. Sustainable and integrated water resource management, based on principles of efficiency and conservation, and implemented by a more efficient provision of water services, increased levels of wastewater treatment and reuse, and an improved institutional framework, is expected to have positive effects on poverty and inequality by increasing the affordability and accessibility of services. It will also have a positive impact on the country’s competitiveness and infrastructure, particularly in the water sector. These objectives are all aligned with the government’s 2007- 2012 PND, and they fit within the framework outlined in the CPS FY08-FY13 for Mexico.

The World Bank will support CONAGUA in positioning itself vis-à-vis climate change and placing this issue at the top of its corporate agenda. This support will be provided through streamlined International Bank for Reconstruction and Development (IBRD) financial support, whereby the design and implementation of the proposed operation will be accompanied by an enhanced package of knowledge and policy coordination services set forth in a Technical Assistance Program. Resources are expected to be available from the Water Partnership Program and the Spanish Trust Fund for Latin America and the Caribbean (SFLAC) for technical assistance and advisory services to support program advancement.

4. Financing

Source:	(\$m.)
Borrower/Recipient	0
IBRD	450
Total	<u>450</u>

5. Institutional and Implementation Arrangements

The proposed program supports the GOM’s national strategies and plans in water sector and climate change adaptation. Thus, implementation, monitoring and evaluation align with the GOM’s own strategy, objectives and processes. The PND 2007-2012 establishes objectives and strategies (to be fulfilled by the end of the current Administration in 2012), which are implemented by means of a set of Sectoral Programs 2007-2012. The water sector commitments of the PND are thus in line with the Environmental and Natural Resources Sectoral Program (*Programa de Medio Ambiente y Recursos Naturales*), implemented by SEMARNAT; the National Water Program (Programa Nacional Hídrico, PNH) implemented by CONAGUA;

and the PECC implemented by the Inter-Ministerial Commission on Climate Change (Comité Intersectorial de Cambio Climático, CICC).

In an effort to synthesize large amounts of information, this operation proposes a streamlined monitoring and evaluation framework, which will help the GoM and the Bank assess progress towards the successful implementation of the operation within the implementation timeframe, which extends to the end of the current Administration. The evaluation of the program will be facilitated by the overlap with the end of the Administration period, as progress will be assessed at that point to take stock of the results achieved by the current government. CONAGUA will be responsible for the implementation of the proposed components and for reporting progress. SEMARNAT will provide additional information relating to implementation of the PECC.

The Bank will monitor actions taken to achieve the expected outcomes and review progress in the implementation of the DPL, as well as subsequent government actions. In compliance with the Planning Law (*Ley de Planeación*, Art. 6) the federal government has to produce progress reports on the implementation of the National Development Plan to inform the Congress.² The PND progress report provides information on the actions undertaken for the completion of the Plan's objectives and strategies within the five basic policy pillars. Thus, it will be the crucial instrument used by this DPL to monitor progress in all policy areas.

The Bank will continue to help CONAGUA and SEMARNAT bring forward the adaptation agenda in the water sector by means of Technical Assistance Program. During the preparation of this DPL, the Bank has preliminarily agreed with CONAGUA on the scope and contents of this Technical Assistance Program, which would include: a) Support CONAGUA's Efforts Towards the Creation of a Long-Term Planning Vision for the Sector – Vision 2030; b) Strengthening of the Financial System in the Water Sector; c) Water Resources Management and Adaptation to Climate Change at the Basin Level; d) Support the National Program for the Modernization of the Meteorological Service; e) Mainstreaming Adaptation to Climate Change in the Water Sector (support in view of the Conference of the Parties - COP 16 - events).

Implementation of the water sector programs and adaptation policies embedded in the PECC will require a strong inter-institutional coordination capacity. In response to this anticipated need, the Bank will support the government of Mexico to implement its water sector programs through lending instruments and technical assistance. A core element of the assistance is helping to build the capacity of the institutions involved and to strengthen the linkages of those institutions in their policy-setting, investment review and financing capacities. A parallel investment and technical assistance project is concurrently being prepared by the Bank with CONAGUA that will help strengthen its institutional capacity (Efficiency Improvement Program for the Water and Sanitation Sector – *Programa de Mejoramiento de Eficiencias*, PROME).

² These reports have to be delivered annually in the month of March while the current Administration is in office. The government agencies in charge of the implementation of the sectoral programs provide the SHCP with inputs for the PND progress report. Afterwards, the document is sent to the President's Office for his signature. The information provided by the government agencies is based on 2007-2012 indicators, as stated in the sectoral programs. The sectoral programs link their own objectives and strategies with those of the PND.

6. Benefits and Risks

The DPL will support government priorities established in the climate change adaptation and water sector agenda. Mexico has emerged as a global climate change leader and is moving quickly to prepare mitigation and adaptation policies to tackle the most pressing issues that affect the country's main economic sectors. Mexico's role as a leader will be in the spotlight during the Conference of the Parties 16 (COP 16), to be held in Mexico at the end of 2010. The proposed operation represents a further step in the country's engagement in climate change and its impact on the hydrological cycle, a process that is expected to intensify over the course of this century. Through this operation, the World Bank Group will support Mexico, and particularly the National Water Commission (*Comisión Nacional del Agua*, CONAGUA) and the Ministry of the Environment and Natural Resources (*Secretaría de Medio Ambiente y Recursos Naturales*, SEMARNAT), to further its position as a prominent international player in the climate change dialogue.

The operation's main risks arise from the economic and fiscal situation, the political and administrative context and the potential environmental / social risk. Overall, however such risks are deemed to be of low impact and, as such, the proposed loan is subject to low risk. Below is a matrix identifying the main risks assessed for the operation and the related mitigation measures.

Persistence of the economic downturn in Mexico's major markets, particularly the United States, and/or low commodity prices could lead to fiscal pressures that might undercut the Borrower's capacity to implement key aspects of the operation, notably its capacity to fund water sector and watershed management programs through which climate change adaptation is to be mainstreamed. Mitigating factors include revenue stabilization funds, leveraged by a policy of oil price hedges, which have compensated part of the revenue shortfall and allowed Mexico to implement its countercyclical policy response in 2009. Oil price hedges have been contracted and limits on revenue stabilization funds were lifted for 2010 thereby allowing for the replenishment of the funds and the revenue smoothing mechanisms to operate and mitigate future sharp drop in oil revenue. Throughout the crisis Mexico maintained access to domestic, international and multilateral debt markets. Policy measures to mitigate the impact of a waning global risk appetite include a new one-year arrangement for Mexico under the Flexible Credit Line (FCL) of the IMF (approved in March 2010) as well as a rules based intervention mechanism to increase the level of international reserves.

Presidential elections leading to a change in administration in 2012 could weaken commitment to Mexico's climate change agenda and, specifically, to actions in the water sector to adapt to climate change. Stakeholder opposition to the program could emerge as its effects become clearer with implementation. SEMARNAT, CONAGUA, and CONAFOR may prove to lack the capacity to advance the program. This risk is addressed by the fact that Mexico has transmitted its Fourth Communication to the UNFCCC (the first non-Annex 1 country to do so), which consolidates its reputation as a global leader on climate change adaptation and is likely to wish to maintain its leadership position, rather than be seen as retreating. In addition, successive administrations have declared water a "strategic matter of national security," a view which further deterioration in water supply and quality would only reinforce. Mexico's

commitment to climate change adaptation, both broadly and in the water sector, is embedded in the 2004 Water Law, which adopted the principles of IWRM, and in a range of national plans and established water sector and watershed management programs. Stakeholder support is likely to be maintained through participatory and consultative processes and arrangements mandated by national law, such as the requirement for a 60-day public comment period on proposed regulations and the River Basin Councils and other multi-stakeholder councils. The Bank will support implementing capacity through a Technical Assistance Program arrangements and through its on-going engagement with the government on water sector/climate change matters.

Program implementation could produce unexpected adverse social and environmental effects. The policies supported by the proposed operation are expected to have significant positive social and environmental effects, including benefits to the poor, agricultural producers, water users in general, and other stakeholders. For any potential negative environmental effect that could eventually derive from: i) risks associated to lower institutional capacity at de-concentrated level. ii) possibility of increasing over-exploitation in cases of over-concessions of water; and iii) incentives under programs not linked to proper environmental standards; mitigation measures have been identified..

7. Poverty and Social Impacts and Environment Aspects

Poverty and Social Aspects

Overall, the Adaptation to Climate Change in the Water Sector DPL is expected to have a significant positive impact on the country's poor and vulnerable communities. During preparation, the Bank reviewed recent poverty and social impact studies in the water sector in Mexico. Those studies helped to identify the expected impacts that the policies supported by this DPL could have on different social groups.³ Further work on a full Poverty and Social Impact Analysis (PSIA) of selected policies will be carried out by Bank staff with government counterparts during program implementation.

The policies and reforms supported by this operation encompass adaptation measures aimed at improving water availability and water quality whose social impacts vary across regions. Broadly speaking, poor farmers located in the semi-arid and arid central and northern parts of the country will benefit more from measures aimed at improving water availability through watershed management, aquifer recharge, and water efficiency and savings. Measures aimed at improving water quality are likely to produce larger benefits for (a) poor people in the southern states, where the largest infrastructure gaps remain; (b) persons living in slums that lack piped water or sanitation; and (c) persons living in areas at risk of extreme weather events, such as coastal areas, unstable slopes, and flood plains.

Environmental Aspects

³ Bank studies included the "PSIA for Groundwater Over-exploitation in Mexico" (2009) and the "Climate Change with a Human Face in Mexico" (2010). Non-bank studies included SEMARNAT (2009): The Social Impacts of Climate Change.

The program is likely to have significant positive effects on the environment and natural resources. The project will play an important role in reducing the negative environmental effects of climate change to contribute to the sustainability of water resources management in Mexico. The policy actions that comprise the DPL are expected to have positive impacts, particularly as they relate to the country's environment, natural resources and habitats, by both reducing the current impact of water extraction for human activities and setting the stage for better adaptation to future climate change. The reforms adopted in the water programs and norms will contribute to increasing water use efficiency, promoting water conservation and reducing water pollution, with clear positive environmental impacts.

The implementation of the IWRM approach supported by this DPL will foster the integration of environmental and social considerations in the planning and design of water projects and activities. The institutional strengthening activities will enable CONAGUA to achieve the sustainability and adaptation goals established in the PECC, which includes a detailed plan for addressing water issues related to climate change. The program's main objectives are to reduce Mexico's vulnerability to climate change by retrofitting water infrastructure and providing incentives for making it adaptation-friendly, strengthening the capacity of strategic institutions to address adaptation, and improving the quality of services and research and technology.

The provisions of OP 8.60 on Development Policy Lending apply to the Adaptation to Climate Change in the Water Sector DPL. The program plays an important role in helping to mainstream environmental considerations in a key sector (water) as well as in Mexico's overall approach to development. Since the justification for the operation itself is to provide support to the government in its efforts to mainstream climate change and environmental considerations into the water sector, the operation's design is proactive with respect to internalizing environmental concerns. This occurs at specific levels. At the sectoral level, policy reforms in the water sector support the integration of environmental concerns by helping to increase efficient water use and reduce waste, contributing to the sustainable management of natural resources. Other positive impacts on the environment are expected to derive from improved environmental management at the national and local (basin, watersheds) level, on which the program places particular emphasis by promoting improved transparency and community participation.

OECD has produced two Environmental Assessments for Mexico (1997, 2003). The major shortcomings identified in the Legal/Institutional Framework relate to two aspects: Reporting and Access to Information. It has been common practice in previous projects to request that the executing agency (CONAGUA) provides a work-program to SEMANARNAT in order to cross check that reporting functions are properly executed. With regards to Public Information/Consultation, CONAGUA has already invited the civil society to public meetings in order to present its projects and operations (starting with the Integrated Irrigation Modernization Project, PMIR, in 2005) and their Environment and Social Frameworks. This led, among other things, to an ongoing collaboration of CONAGUA with World Wildlife Fund in the preparation/consultation of the Norm for Ecological Flows.

The implementing agencies (SEMARNAT and CONAGUA) have made real strides on indicators of environmental compliance and enforcement, including practical applications, revisions and improvements and currently are deemed to have a good framework in place. Over time CONAGUA has developed specific guidelines and operational manuals to guarantee compliance with federal environmental legislation in Environmental Impact Assessments (EIA)⁴. The World Bank has produced Environmental Capacity Assessments during the preparation of previous operations in Mexico (such as for the Natural Disaster Fund project and for PMIR) and results have highlighted that CONAGUA has institutional arrangements with capacity for screening and supervision of potential environmental impacts and mitigation measures. The team recommends that environmental standards and procedures are followed for any activity and / or incentive supported by the DPL. Additionally, it will be particularly important to ensure that institutional capacity is strengthened at the de-concentrated level, especially as more monitoring and executing functions are passed on to the river basin organizations.

8. Contact point

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⁴ CONAGUA (2002) Manual de Procedimientos en Materia de Impacto Ambiental

