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The World Bank

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IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IBRD-79730)

ON A

LOAN

IN THE AMOUNT OF USD100 MILLION

TO

THE UNITED MEXICAN STATES

FOR THE

WATER UTILITIES EFFICIENCY IMPROVEMENT PROJECT (PROME)

February 14, 2017

Water Global Practice
Colombia and Mexico Country Management Unit
Latin America and Caribbean Region

CURRENCY EQUIVALENTS
(Exchange Rate Effective 6/30/2016)

Currency Unit = Mexican Peso (MXN)

MXN 1.00 = US$0.0537
US$1.00 = MXN 18.603

UNITED MEXIAN STATES FISCAL YEAR
January 1 – December 31

WEIGHTS AND MEASURES
Metric System

ABBREVIATIONS AND ACRONYMS

APAZU	Potable Water, Sewerage, and Sanitation Program in Urban Areas *(Programa de Agua Potable, Alcantarillado y Saneamiento en Zonas Urbanas)*
BANSEFI	Bank of National Savings and Financial Services
CONAGUA	National Water Commission *(Comisión Nacional del Agua*)
CY	Calendar Year
DL	Local Offices of CONAGUA *(Dirección Local*)
DMA	District Metering Area
DPL	Development Policy Loan
ERR	Economic Rate of Return
FIRR	Financial Internal Rate of Return
FM	Financial Management
GDP	Gross Domestic Product
ICR	Implementation Completion and Results Report
IDA	International Development Association
IFR	Intermediate Unaudited Financial Report
IMTA	Mexican Institute of Water Technology
ISR	Implementation Status Report
M&E	Monitoring and Evaluation
MAPA	Potable Water, Sewerage and Sanitation Manual *(Manual de Agua Potable, Alcantarillado y Saneamiento*)
O&M	Operation and Maintenance
OBD	Output-Based Disbursement
OC	River Basin Agencies *(Organismos de Cuenca)*
OOs	Service Providers or utilities *(Organismos Operadores*)
PAD	Project Appraisal Document
PATME	Water Sector Modernization Technical Assistance Loan *(Programa de Asistencia Técnica para la Mejora del Sector de Agua y Saneamiento*)
PDO	Project Development Objective
PNH	National Water Program

PRODI	Program for the Integrated Development of Water and Sanitation Utilities *(Programa para el Desarrollo Integral de Organismos Operadores de Agua y Saneamiento*)
PROME	Program for Utility Efficiency Improvement *(Programa de Mejoramiento de Eficiencias de Organismos Operadores*)
SEMARNAT	Ministry of Environment and Natural Resources *(Secretaría del Medio Ambiente y Recursos Naturales*)
SHCP	Ministry of Finance and Public Credit *(Secretaría de Hacienda y Crédito Público*)
SOE	Statement of Expenditures
TA	Technical Assistance
WSS	Water Supply and Sanitation

Senior Global Practice Director:	Guang Zhe Chen
Sector Manager:	Rita Cestti
Project Team Leader:	Charles Delfieux
ICR Team Leader:	Amanda Goksu/ Charles Delfieux

MEXICO
Water Utilities Efficiency Improvement Project (PROME)

CONTENTS

Data Sheet

A. Basic Information			
Country:	Mexico	Project Name:	MX Water Utilities Efficiency Improvement Project (PROME)
Project ID:	P121195	L/C/TF Number(s):	IBRD-79730
ICR Date:	11/21/2016	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	GOVERNMENT OF MEXICO
Original Total Commitment:	USD 100.00M	Disbursed Amount:	USD 100.00M
Revised Amount:	USD 100.00M		
Environmental Category: B			
Implementing Agencies: CONAGUA *Comisión Nacional del Agua*			
Cofinanciers and Other External Partners:			

B. Key Dates				
Process	**Date**	**Process**	**Original Date**	**Revised / Actual Date(s)**
Concept Review:	04/08/2010	Effectiveness:	11/25/2011	11/25/2011
Appraisal:	07/09/2010	Restructuring(s):		12/01/2014
Approval:	11/09/2010	Mid-term Review:	11/18/2013	04/28/2014
		Closing:	12/31/2014	06/30/2016

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	Moderately Unsatisfactory
Risk to Development Outcome:	Moderate
Bank Performance:	Moderately Unsatisfactory
Borrower Performance:	Moderately Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	**Ratings**	**Borrower**	**Ratings**
Quality at Entry:	Moderately Unsatisfactory	Government:	Moderately Satisfactory
Quality of Supervision:	Moderately Unsatisfactory	Implementing Agency/Agencies:	Moderately Satisfactory

Overall Bank Performance:	Moderately Unsatisfactory	**Overall Borrower Performance:**	Moderately Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	**Indicators**	**QAG Assessments (if any)**	**Rating**
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Moderately Satisfactory		

D. Sector and Theme Codes		
	Original	**Actual**
Sector Code (as % of total Bank financing)		
Public administration - Water, sanitation and flood protection	5	5
Wastewater Collection and Transportation	25	25
Water Supply	70	70

Theme Code (as % of total Bank financing)		
City-wide Infrastructure and Service Delivery	50	50
Urban services and housing for the poor	50	50

E. Bank Staff		
Positions	**At ICR**	**At Approval**
Vice President:	Jorge Familiar Calderon	Pamela Cox
Country Director:	Gerardo M. Corrochano	Gloria M. Grandolini
Practice Manager/Manager:	Rita E. Cestti	Guang Zhe Chen
Project Team Leader:	Charles Delfieux	David Michaud
ICR Team Leader:	Amanda Joan Goksu/ Charles Delfieux	
ICR Primary Author:	Amanda Joan Goksu	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)
The PDO is to improve the efficiency of Participating Water Utilities through the provision of technical assistance and financing.

Revised Project Development Objectives (as approved by original approving authority)

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Number of water utilities whose collected revenues in Mexican pesos per cubic meter produced increased by 5 percent in real terms			
Value quantitative or Qualitative)	0	30		25
Date achieved	10/5/10	10/5/10		6/30/16
Comments (incl. % achievement)	The target was 83 percent achieved. Twenty-five utilities showed an increase in revenues of at least 5 percent in a given year over the course of the Project.[1] This can be attributed to higher volumes billed and/or higher collection of bills through any of the "commercial efficiency" investment types listed in Table A.1 (see Annex 2).			
Indicator 2 :	Number of water utilities whose energy consumption in kWh per cubic meter produced decreases by 5 percent			
Value quantitative or Qualitative)	0	8		7
	10/5/10	10/5/10		6/30/16
Comments (incl. % achievement)	The target was 88 percent achieved.[2] These improvements were made through the "energy efficiency" investment types listed in Table A.1 (see Annex 2), which include replacing or refurbishing electromechanical equipment or improved operational optimization techniques. It is also possible that some energy was saved as a result of physical efficiencies via infrastructure rehabilitation.			
Indicator 3 :	Number of water utilities showing a commercial efficiency improvement of 5 percent or more			
Value quantitative or Qualitative)	0	30		12
Date achieved	10/5/10	10/5/10		6/30/16
Comments (incl. %	The target was 40 percent achieved. These improvements were likely made primarily through the commercial efficiency investment types listed in Table A.1			

[1] Some utilities meet the indicator in more than one year. A total of 18 different utilities meet the indicator one or more times. See Table A2.8 for full list.

[2] One utility met the indicator in more than one year. A total of 6 different utilities met the indicator one or more times. See Table A2.8 for full list.

achievement)	(see Annex 2) which include improvements in commercial system hardware and software, installation of micrometers, and re-engineering of billing and collection systems. Micro-metering was by far the most common type of investment under PROME, comprising 18 percent of all actions and 30 percent of budget allocation.			
Indicator 4 :	Number of utilities whose global efficiency increases by 2 percent			
Value quantitative or Qualitative)	0	5		8
Date achieved	12/1/14	12/1/14		6/30/16
Comments (incl. % achievement)	The target was 160 percent achieved. Global efficiency is a product of commercial and physical efficiency, and is improved usually as a result of multiple types of actions supporting different types of efficiency improvements.			
Indicator 5 :	Average absolute increase of global efficiency in water utilities that participated in the Project for at least 2 years			
Value quantitative or Qualitative)	0	2		N/A
Date achieved	10/5/10	10/5/10		
Comments (incl. % achievement)	This indicator was dropped during the 2014 restructuring to align with the other 3 key indicators, which measure number of utilities rather than percent of total participating utilities. The change in the indicator's measurement is much less ambitious than the initial definition, but much more realistic given that it is difficult for any utility to improve global efficiency in less than five years.			

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Component 1: Number of water utilities' employees trained in issues related to efficiency programs			
Value (quantitative or Qualitative)	0	800		670
Date achieved	10/5/10	10/5/10		6/30/16
Comments (incl. % achievement)	The target was 84 percent achieved. CONAGUA carried out 25 workshops for utility staff on three topics: Strengthening commercial systems (Sept – Oct. 2012); Theory and practice of increasing electromechanical efficiencies (Sept – Oct. 2012); and Water and energy savings (March – Sept. 2013). A total of 670 utility staff were trained during these events. While these were not paid for by the Project funds, they are reported here as they were designed to support participating utilities implementing PROME actions.			
Indicator 2 :	Component 1: Number of publications related to efficiency issues available at CONAGUA's website			
Value				

(quantitative or Qualitative)	0	7	5	0
Date achieved	10/5/10	10/5/10	12/1/14	N/A
Comments (incl. % achievement)	No progress was made on this indicator.			
Indicator 3 :	Component 1: National Tariff system is available in user friendly website			
Value (quantitative or Qualitative)	No	Yes		N/A
Date achieved	10/5/10	10/5/10		
Comments (incl. % achievement)	The indicator was dropped during the 2014 restructuring because CONAGUA was not using PROME funds to support tariff information.			
Indicator 4 :	Component 2: Percentage of implemented actions that achieved their set targets			
Value (quantitative or Qualitative)	N/A	60		95
Date achieved	10/5/10	10/5/10		6/30/16
Comments (incl. % achievement)	The target was 158 percent achieved. The data is self-reported by participating utilities that complete PROME actions. Data was not available on the specific set targets.			
Indicator 5 :	Component 2: Number of water utilities that participated in the OBD window			
Value (quantitative or Qualitative)	0	1		N/A
Date achieved	10/5/10	10/5/10		N/A
Comments (incl. % achievement)	The indicator was dropped during the 2014 restructuring due to lack of demand from utilities and CONAGUA to implement component 2c.			
Indicator 6 :	Component 2: Number of water utilities that the project is supporting			
Value (quantitative or Qualitative)	0	50	60	91
Date achieved	10/5/10	10/5/10	12/1/14	6/30/16
Comments (incl. % achievement)	The target was 182 percent achieved. The initial target of 50 was an estimate and the number of potential participating utilities was not capped. This resulted in more utilities each with a smaller dollar value of investments than initially envisioned. The 91 utilities supported are located in 25 of Mexico's 31 states.			
Indicator 7 :	Component 1: Number of workshops undertaken to disseminate the Program results and the best practice utility case studies			
Value (quantitative or Qualitative)	0	2		1

Date achieved	10/5/10			6/30/16
Comments (incl. % achievement)	The target was 50 percent achieved. A workshop to disseminate the results of the IMTA study was conducted in 2014. Workshop participants learned about best practices with PROME. The workshop was not paid from Project funds, but rather from CONAGUA's own resources, and is reported here as it is directly linked to PROME activities.			
Indicator 8 :	Component 1: Number of best practice utility case studies documented			
Value (quantitative or Qualitative)	0	5		0
Date achieved	10/5/10			
Comments (incl. % achievement)	The target was not achieved, although there was sufficient information from the IMTA study to develop the best practice utility case studies..			

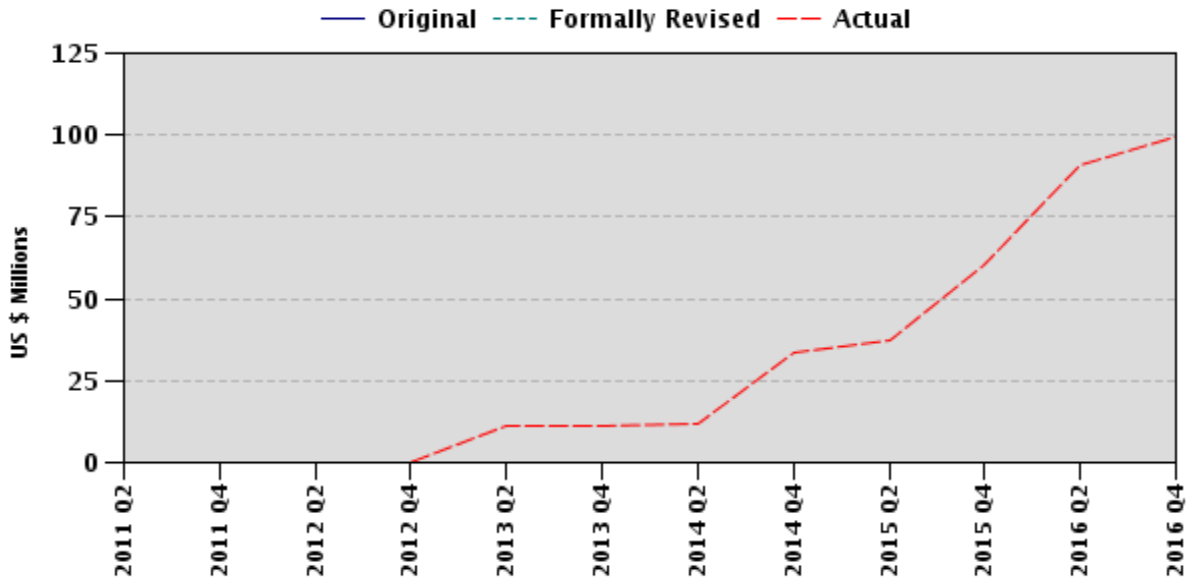
G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	01/24/2011	Satisfactory	Satisfactory	0.00
2	08/08/2011	Satisfactory	Satisfactory	0.00
3	01/30/2012	Satisfactory	Satisfactory	0.00
4	08/25/2012	Satisfactory	Moderately Satisfactory	4.83
5	02/28/2013	Moderately Satisfactory	Moderately Unsatisfactory	11.15
6	12/03/2013	Moderately Satisfactory	Moderately Unsatisfactory	11.97
7	07/09/2014	Moderately Satisfactory	Moderately Satisfactory	33.80
8	01/01/2015	Moderately Satisfactory	Moderately Satisfactory	37.07
9	07/12/2015	Moderately Satisfactory	Satisfactory	60.47
10	12/18/2015	Moderately Satisfactory	Satisfactory	90.60
11	06/21/2016	Moderately Satisfactory	Satisfactory	99.66

H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
12/01/2014	N	MS	MS	37.07	A level 2 restructuring was required to cancel component 2c (due to lack of demand); extend closing date by 18 months, and revise a few indicators.

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. At the time of Project appraisal, Mexico was the 13th largest economy in the world, growing at an average 1.8 percent per year.[3] In 2009, as a result of the financial crisis, the country experienced the largest Gross Domestic Product (GDP) contraction in 20 years (6.6 percent), which was the deepest reduction in the Latin America and Caribbean Region.[4] Partly to blame was Mexico's reliance on the United States as a major export market. The event gave way to a larger informal economy.

2. In 2010, more than 118 million people were living in Mexico; 78 percent were urban resident (World Bank, 2010b). Compared with other OECD members, Mexico had significant social inequalities and high concentrations of wealth. Nearly 53 million people were living below the national poverty line.[5] Despite public investment in education, health, and social security, income inequality had remained high for three decades.

3. For the last half century, the country has been advancing toward an acute water crisis. At the time of Project approval, water availability per person was decreasing, yet access to water supply and sanitation services was relatively high for the region. In urban areas, 98 percent of the population had access to improved water services and 81 percent has access to improved sanitation facilities.[6] Access was lower in rural areas (85 percent for water; 48 percent for sanitation) and especially for indigenous communities.

4. During mid-2000s, the quality of water supply and sanitation (WSS) services was lagging due to high physical and commercial inefficiencies and low financial sustainability of service providers. Water was generally supplied for half the day, far below the 24-hour norm for other OECD member countries. The weighted average Non-Revenue Water (NRW) for utilities with populations over 50,000 was 38 percent, more than one third of utility customers did not have their consumption metered, and over 20 percent of bills went uncollected (Olson and Saltiel, 2006).

5. Given the high rates of water stress, national policies focused on resource sustainability but felt short of providing a coherent framework for action at the local level. With the passing of the National Water Law in 1992 and its update in 2004, Mexico made significant advances in water resources monitoring and assessment, planning, and water rights administration. However, policies were segmented across three different documents and while the national vision of efficient use and services was backed by a US$10 billion commitment to WSS through 2012, it lacked an integrated strategy around tariff setting, service quality and performance goals (World Bank, 2010a).

6. Policy implementation in Mexico is complicated by a three-tiered institutional structure. Roles are spread across federal agencies, state governments, and local service providers and vary from state to state. The federal National Water Commission (CONAGUA for its acronym in Spanish - *Comisión Nacional de Agua*) protects and ensures the sustainable use of national water resources. It is mandated to provide sector strategy, policy and programs, and assist other levels of government with water management, including WSS provision. CONAGUA implements a number

[3] GDP growth rate, 2004-2009.
[4] 2010. Congressional Research Service. *The Mexican Economy after the Global Financial Crisis.*
[5] National Council for the Evaluation of the Social Development Policy (CONEVAL), 2010.
[6] As written in PAD using data from 2006.

of federal investment programs, including the Water Utility Efficiency Improvement Project (PROME for its acronym in Spanish - *Programa de Mejoramiento de Eficiencia de Organismos Operadores*).[7] CONAGUA does not (yet) regulate tariffs or service quality.

7. Mexico's 2,500 municipalities are the main entities providing urban WSS services (since the 1983 decentralization effort). States provide technical and financial assistance, although some State Water Commissions provide services as well. Most municipalities provide services through the Service Providers (OOs for its acronym in Spanish - *Organismos Operadores*). The OOs lack financial autonomy and are highly dependent on state and federal government for financing. Tariffs, which are generally approved by states without consideration of utility needs, often do not cover costs.

8. The Project was aligned with the government's vision to improve the quality of existing services through management and efficiency gains that could help reduce subsidies to the sector. One policy goal was to increase the national average of utilities' global efficiency from 36 percent to 44 percent by 2012. The Project was one of several federal programs with the intention to use subsidies as an incentive to improve performance.

9. PROME was envisioned as a scale-up of a satisfactory pilot program that improved such efficiencies. The Mexico Water Sector Modernization Technical Assistance Project (PATME for its acronym in Spanish – *Programa de Asistencia Técnica para la Mejora del Sector de Agua y Saneamiento*) with the support and financing of the World Bank was concluded in 2010 after 5 years in operation. PATME introduced a performance-based efficiency improvement approach in 18 water utilities and developed 12 standard performance indicators. Between 2006 and 2009, collection efficiency index rose from 69.8 percent to 76.6 percent, and operational efficiency from 53.4 percent to 55.4 percent for participating utilities.

10. The Bank's support to the PROME Project complemented other Bank support to the water sector. A Development Policy Loan (DPL) approved in June 2010 supported improved water resources management and led to a new Climate Change Law, which strengthened CONAGUA's water resources monitoring capacity.

1.2 Original Project Development Objectives (PDO) and Key Indicators

11. The original PDO as per the Project Appraisal Document (PAD) was: "to improve the efficiency of participating water utilities through the provision of technical assistance and financing."

12. The associated key indicators were as follows:

- Number of water utilities whose collected revenues in Mexican pesos per cubic meter produced increased by 5 percent in real terms.
- Number of water utilities whose energy consumption in kWh per cubic meter produced decreases by 5 percent.
- Number of water utilities showing a commercial efficiency improvement of 5 percent or more.
- Average absolute increase in global efficiency in water utilities that participated in the project for at least 2 years.

[7] Programs financing efficiency improvement activities were APAZU, PRODDER, G.I.C. RAMO33 and F.I.S.M.

1.3 Revised PDO and Key Indicators

13. The original PDO remained unchanged. The key indicator *"average absolute increase in global efficiency in water utilities that participated in the project for at least 2 years"* was changed to *"number of utilities with a 2 percent increase in global efficiency.*"

1.4 Main Beneficiaries

14. The Project was to benefit primarily the decentralized water utilities in urban communities with more than 20,000 inhabitants. The water utilities were expected to increase capacity with regard to efficiency improvement, better knowledge and information management; as well as to increase their ability to provide efficient, reliable water and sanitation services to their users. The ultimate beneficiaries of the Project were the users served by the participating water utilities.

1.5 Original Components

15. The Project included two components.

16. **Component 1: WSS sector information and knowledge management improvement** (Estimated cost: US$4.75 million, IBRD funding: US$4.75 million). This component aimed at improving water supply and sanitation institutions' capacity with regards to efficiency improvement. It included two lines of action: (a) management of information; and (b) management of knowledge.

17. **Component 2: Modernization of the services of participating water utilities** (Estimated cost: US$157 million, IBRD funding: US$95 million). This component aimed at financing physical and commercial efficiency improvement measures. It included three sub-components:

- **Sub-Component 2a: Technical Assistance (Estimated cost: US$7.0 million).** It intended at supporting diagnostic and investment plans to prioritize efficiency improvement investments financed by PROME or other federal programs, and other technical studies.

- **Sub-Component 2b: Classical Efficiency Investments (Estimated cost: US$145 million).** It intended at financing of typical operational and commercial improvements based on diagnostic studies at the OO level.

- **Sub-Component 2c: Pilot Output-based Efficiency Investments (Estimated cost: US$5.0 million).** It intended at financing similar activities as Subcomponent 2b but using outputs, rather than inputs, as the basis for disbursement.

1.6 Revised Components

18. As part of a Level 2 Project restructuring completed in December 2014, Sub-Component 2c was cancelled. No activities were implemented under this sub-component. The other sub-components under Component 2 and Component 1 remained as per the original design.

1.7 Other Significant Changes

19. Other changes agreed as part of the Level 2 Restructuring were the following:

- *Closing date extension:* The Project closing date was extended by 18 months given the anticipated lag between execution and documentation/processing of activities.

- *Reallocation of funds between components:* Allocation of funds for Component 1 was reduced by US$4.5 million. Activities implemented under this component were financed by CONAGUA's own funds. Funds originally earmarked for Component 1 in addition to the funds allocated for Sub-component 2c were re-allocated to Sub-Components 2a and 2b (see Table 1).

- *Results framework*. In line with the restructuring and budget adjustments, the results framework was revised including the cancellation of the intermediate indicator related to Sub-Component 2c and the replacement of two intermediate indicators related to Component 1 with a new indicator on best practices. Finally, the change in the original last key indicator was also processed under this restructuring.

20. Two additional budget re-allocations were made during the last 10 months of the Project. As the amounts were relatively small, these were not done through a formal restructuring. The first was an authorization to overdraw funds in Category 2a as demand for technical assistance surged, and the second moved all remaining funds under Component 1 into Sub-components 2a and 2b through a closing letter approved by Loan Operations dated July 6, 2016 (see Table 1).

Table 1. PROME Budget Re-allocations 2011-2016 (US$) (not including counterpart funds)

Component/ Sub-Component	Original Budget	Dec. 2014 (Restruct.)	Sept. 2015	June 2016	Total Change
Component 1	4,750,000	125,000	125,000	-	- 4,750,000
Sub-Component 2a	5,000,000	6,500,000	7,300,000	8,090,950	+ 3,090,950
Sub-Component 2b	87,000,000	93,125,000	92,325,000	91,659,050	+ 4,659,050
Sub-Component 2c	3,000,000	-	-	-	- 3,000,000

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

Project Preparation and Design

21. **Soundness of background analysis.** The Project was envisioned as a large scale-up of PATME with six times the budget. While PATME utilities were "mostly hand-picked" for participation, PROME was open to any eligible utility[8] to propose a range of traditional investments and technical assistance support ("actions") to improve commercial, physical and energy efficiency (see Table A2.7).[9] PATME provided lessons learned, mostly notably the effectiveness of

[8] This included utilities that were in cities with more than 20,000 inhabitants; were in States with signed coordination agreements with the federal government; counterpart funds allocated to APAZU and not to any other federal program; had closed out all required financial documents from prior years' participation in PATME or PROME; and had completed the "Technical Annex" by February of the year of expected implementation.

[9] Including rehabilitation of water production, transportation and distribution systems, creation of District Metering Areas, replacement of inefficient electromechanical equipment, installation of water meters and monitoring systems; as well as non-structural measures such as development of Information Systems used for water consumer registration, hydraulic network modeling, or billing management.

encouraging multi-annual participation and priority given to commercial efficiency improvements, which showed greater impacts on financial sustainability than other types of improvements.

22. The Project design improved upon PATME's in two ways. First, it required utilities to complete a diagnostic (planning tool) to demonstrate the soundness of proposed actions, something that was not required under PATME. Second, it would use selection criteria to prioritize utilities that participated for more than one year. These initiatives would safeguard against inefficient use of funds, but the PAD did not go far enough to detail how individual actions would help achieve the high-level results envisioned in the key indicators.

23. **Implementation arrangements**. CONAGUA's Office of Water Utilities Strengthening was the implementing agency with the Bank of National Savings and Financial Services (BANSEFI) as financial agent. CONAGUA had prior experience with the World Bank and other donor-funded programs, and had proven high capacity in financial management, procurement and monitoring and evaluation (M&E). Utilities were responsible for implementing investments. While priority was given to those with previous experience in PATME or PROME, and those located in the Valle de Mexico, the Project was essentially open to any utility across the country that expressed interest in making efficiency improvements.

24. **Assessment of risks.** The PAD rated the overall risk as medium (level 2). However, the risks identified were not properly mitigated. To mitigate a capacity risk, CONAGUA's staff would be scaled up to match the much higher level of disbursements vis-a-vis PATME. However, with no limit on the number of participating utilities, the 50 utilities estimated in the PAD grew to 91 utilities, nearly doubling the scope of work on M&E and general coordination of financial management and procurement oversight. A second risk, as stated in the PAD, was that the Project "might not lead to the expected outcome… in a measurable way". This was mitigated by the use of diagnostics and technical oversight to properly plan and implement the actions, but did not address ways to measure the Project's attribution. In 2014, the Project accounted for just 4 percent of federal funds to CONAGUA and only 13 percent of the country's federal funds targeted toward efficiency improvements.

25. **Government commitment.** The Government's vision of the Project as solely a delivery mechanism for traditional utility investments was clear from the start. It committed US$62 million in counterpart funding for the traditional investments.[10] However, the more innovative output-based disbursement (OBD) component could not be implemented within the timeframe and it was eventually cancelled in 2014.

26. A Mid-Term Review narrowed the Project focus toward traditional utility investments. Through the subsequent restructuring in December 2014, the agreed upon changes were realized, including dropping of the OBD Sub-Component (2c) and reduction in the knowledge budget (Component 1), which was eventually reduced to zero.

27. **External factors.** Two factors outside of CONAGUA's control were key to implementation. First, macroeconomic factors impeded the proper allocation of funds to the Project for the first 3 years. Second, Mexico has a 1-year budget cycle, within which all actions must be designed, procured and executed between January and December. The Project was thus constrained by the type of actions that could be implemented within a year, but also the number of utilities having the capacity to do so. This is evidenced in two ways: (i) The fact that only 22 of the 91

[10] Counterpart funds for the Project included US$62 million from the state, municipality or internal utility cash flow, and were a requirement for any federal program managed by CONAGUA.

participating utilities reported progress toward indicator targets; and (ii) the borrower's ICR states that lower capacity utilities had difficulty completing actions. The results are thus concentrated in a handful of utilities, making it difficult to ascertain the full impact of PDO achievement across all participating utilities.

2.2 Project Implementation

28. According to the PAD, the Project was scheduled to begin implementation by early-2011 and be completed by end-2014. However, the Project faced delays at different stages. Initially, effectiveness was delayed by about 11 months. The Project became effective in November 2011 due to delays with the signature of the subsidiary agreement and the issuing of a legal opinion about the agreement.

29. Insufficient federal budget annual allocations to the APAZU[11] program contributed to the limited implementation progress during the first three years of the Project, forcing CONAGUA to implement very quickly during the final three years. In 2011, only 28 activities in 5 utilities were undertaken, followed by a year in which no budget was allocated. By late-2014, the Project had a very low (37 percent) disbursement rate. Overall, the delay meant that CONAGUA had to do the same amount of work in half the time. As stated in the Borrowers' ICR, "the financial and procurement aspects of the program absorbed practically all available staff time" leaving little time to work toward Component 1 tasks during the final three years.

30. During the initial slow years of the Project more could have been done to advance on knowledge and information systems to bolster national benchmarking capacity. The Bank Team took advantage of new leadership in 2012 to re-engage CONAGUA on those components not making progress, and CONAGUA called for a mid-term evaluation conducted by the Mexican Institute for Water Technology (IMTA). At that time, 143 actions across 27 municipalities and 10 states were analyzed, and IMTA found that investments did not follow any prioritization criteria, many utilities had undertaken investments, sometime isolated ones, for very small amounts and about half of the utilities lacked comprehensive investment plans. Recommendations from this evaluation included: strengthening the planning of investments in the medium- and long-term; establishing a reliable baseline and monitoring system for the evaluation of impacts; and making minimum investments. Unfortunately, due to time constraints and the need to disburse all funds in three years, CONAGUA did not have the capacity to follow up on these recommendations. However, some pilot benchmarking work is now being started at the state level outside of the Project.

31. The original closing date of December 31, 2014 was extended by 18 months. Other factors that contributed to the overall delay related to the 1-year budget cycle and procurement issues. The 1-year budget cycle put immense pressure on CONAGUA and the utilities to design and deliver actions within 12 months. In some cases, although procurement was completed, states and utilities had not necessarily assigned the counterpart funds needed to make actions eligible. Works often started around October, leaving only 3 months for execution. About 20 percent of works were not concluded until March of the following year (when permission to extend beyond the budget cycle was obtained) and many others were cancelled altogether given insufficient time to implement.

[11] PROME funds were combined under an existing budget line item for the Potable Water, Sewerage and Sanitation in Urban Areas Program (APAZU for its acronym in Spanish - Programa de Agua Potable, Alcantarillado y Saneamiento en Zonas Urbanas), which had similar objectives with regard to traditional investments.

Some of the participating utilities reported to have faced delays with procurement processing. Documentation was prepared by utilities, reviewed by two separate offices in CONAGUA and then by BANSEFI before being sent to the World Bank. Any objections to documentation required a return to the beginning of the approval chain. In addition, utilities complained about delays with World Bank's no-objections.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

M&E Design

32. The Project had four key outcome indicators, which were strongly linked to the PDO. Targets were commensurate with the 50 utilities expected to participate,[12] except for the last key indicator, which aimed at an average increase in global efficiency across all utilities (difficult for even top performers to do in the course of 5 years). This overly ambitious target was reduced to five utilities during the restructuring. The Project also had eight intermediate outcome indicators, which were appropriately selected and well balanced across the two components. Two of these indicators were dropped during the restructuring. In retrospect, intermediate indicators on Component 1 should have also been dropped or modified when it was clear that CONAGUA did not have capacity for knowledge management improvements.

33. One aspect of the Project that was not addressed in the M&E framework design was attribution. The Project was part of a much broader federal program providing support to utilities of which the World Bank's supported activities represented just 4 percent of total funding. Improvements in a utility's commercial efficiency cannot be attributed solely to the replacement of micrometers or storage tanks in part of the service area, without other complementary changes being made to utility operations or management via the supported federal program. While the results framework accounts for progress made resulting from all sector investments in a given year, it is difficult to separate out the Project's contribution toward achieving the PDO.

M&E Implementation

34. It was acknowledged at the outset that CONAGUA's capacity to track and monitor the indicators needed to be strengthened. Plans to bolster the M&E team in CONAGUA were not carried out in time, partly due to the 3-year implementation delay. While the formal Project eligibility criteria included "presentation of annual indicators", in practice, CONAGUA's requests for data were not fulfilled by all utilities because they feared that negative data would be used to withhold future funding.

35. Throughout Project implementation, the Bank requested additional data from which the results were reported by the utilities. Without the data, the Bank team could not fully understand that there was an attribution challenge. This information was only provided after the Project closed, given CONAGUA's limited capacity, preventing any opportunity to make mid-course corrections. Implementation Status Reports (ISRs) consistently stated delays in obtaining updated Project indicators and M&E ratings were downgraded from moderately satisfactory to moderately unsatisfactory in July 2015 after the issue remained unresolved. The ISR ratings should have been more candid about the impact of the lack of data on the Bank's ability to properly assess progress and attribution challenges. Similarly, PDO's ratings should have been qualified given the

[12] The PAD states that CONAGUA expected 70-80 utilities to participate, but the PAD's results framework has a target of 50.

weaknesses with the M&E system. The Bank team also missed the opportunity provided by the restructuring to address the challenges posed by the dearth of M&E data from participating utilities.

M&E Utilization

36. For the assessment of the Project's achievements, the Bank team relied exclusively on the partial information reported by CONAGUA. No efforts were directed to undertake data collection on a sample of utilities to address the lack of M&E data, which would have better informed decisions about the Project.

2.4 Safeguard and Fiduciary Compliance

Environmental and Social Safeguards

37. The Project was classified as Category B for purpose of OP 4.01 on Environmental Assessment, and triggered OP 4.11 on Physical Cultural Resources and OP 4.12 on Involuntary Resettlement. The Project complied satisfactorily with safeguard policies and instruments. Its minor construction works had no negative environmental, health or safety impacts, including land acquisition or resettlement. An Environmental and Resettlement Framework was prepared and published prior to Board approval, and specific procedures were formalized in the Operations Manual to guarantee compliance with national environmental legislation and Bank safeguards policies. Moreover, an evaluation conducted in 2015 showed that the Environmental and Resettlement Framework was adequately applied, although for smaller utilities, its application was seen as ambitious and arduous. The only negative social impact identified by the evaluation was the turning-off of water during installation. This was mitigated through the use of informal suppliers in the interim period, and strong communications with customers using the communications department of each utility.

Financial Management

38. The financial management of the Project was conducted in accordance with arrangements stipulated in the legal agreement. The financial management risk rating remained substantial throughout the life of the Project, providing the opportunity for the Bank Financial Management Specialist to dedicate more time and attention, which translated into visible results. While early ratings for financial management were moderately unsatisfactory due to low disbursement levels, performance improved as actions were completed and counterpart funds were integrated into all Project documents, including Intermediate Unaudited Financial Reports (IFRs), and annual financial statements.

39. A slowdown in financial processing due to change in personnel in 2014 was quickly rectified with training on financial management, procurement and disbursement provided by CONAGUA to its new staff. CONAGUA's financial division used satisfactory accounting software and internal controls. Annual audits and IFRs were conducted on time and of satisfactory quality.

Procurement

40. Despite the constraints of the 1-year budget cycle, procurement under the Project remained "moderately satisfactory" throughout implementation due to pragmatic solutions developed by CONAGUA and the Bank to accelerate execution. The Bank and CONAGUA worked together to revise procurement procedures to ensure a more streamlined, faster execution of the funds in order

to deliver actions on a yearly basis and under the constraints of late budget allocations. Post reviews showed sound accordance with bidding procedures, record keeping, and contract implementation.

41. Capacity building was provided to ensuring high quality procurement by a diverse group of 91 utilities. CONAGUA provided training to improve bid document preparation, and with BANSEFI also allocated more resources to troubleshoot procurement issues. The Bank helped prepare model technical specifications, which improved the quality of bid documents presented by utilities. The comprehensive Project Operations Manual made compliance straightforward.

42. There was general disagreement from the start about procurement, which generally required four layers of approval. Participating utilities were under pressure to deliver quickly, and argued that many of the actions were small in scale yet still subject to review. CONAGUA claimed that some delayed response times were due to different Bank procurement staff participating at different times in the Project, and applying different criteria. The Bank was inundated with no-objections at the very end of each calendar year. To compromise, the Bank agreed to keep responses to no objections to under 7 days and double the threshold for prior reviews so as to cut down on transaction costs for lower risk procurements. CONAGUA and BANSEFI also agreed to stop their "visto bueno" on procurements already subject to a post-review by the Bank.

43. PROME funds also required procurement to be conducted under World Bank regulations, which were perceived to be more stringent than national regulations. Based on this CONAGUA decided then to use its own operational budget for certain types of procurements. As a result, some minor activities were conducted under Component 1 using other funds, but not of the type or scale of work envisioned in the PAD.

2.5 Post-Completion Operation/Next Phase

44. A US$200 million follow-up operation is being implemented by the Inter-American Development Bank. The Comprehensive Development Program for Water Supply and Sanitation Utilities (PRODI for its acronym in Spanish – *Proyecto para el Desarrollo Integral de Organismos Operadores de Agua y Saneamiento*) aims to improve the quality of WSS services through physical, commercial and administrative efficiency improvements. PRODI includes legal agreements that will require states to deliver on planned interventions backed by 5-year business plans for each utility. The design of this Project was informed by the experiences under PATME and PROME, especially limiting the menu of interventions, setting minimum annual investment per utilities, introduction of planning tools to prioritize interventions, and strengthening data collection for tracking indicators over time.

45. The Bank is narrowing its focus in Mexico's water sector to the use of innovative products that leverage the Bank's comparative advantage**.** Two projects are pushing the envelope on improving sector performance. The first, expected to be approved in FY17, aims to improve the quality and efficiency of water supply services in Mexico City by using a performance-based contract to reduce non-revenue water. Working with SACMEX, the service provider, the Bank is bringing global best practices and promoting a niche product to improve financial sustainability and service quality for up to 9 million people. The second is a Program-for-Results for WSS sector modernization for the State of Oaxaca, which was approved in 2014. This project aims to reach some of the poorest communities in Mexico and is currently experiencing implementation delays due to legal issues that have been addressed through a restructuring and to the change of State Government.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

Relevance of Objectives: High

46. The PDO captured a sector development objective that was and remains important for the country and was consistent with: (i) the thematic area four of the FY08-13 World Bank's Country Partnership Strategy (CPS) for Mexico, focusing in improving financial sustainability and efficiency; (ii) one of the pillars of the FY14-19 CPS, namely "Promoting Green and Inclusive Growth," with its outcome (11) of increasing efficiency in management systems at the sub-national level.

47. The Project was part of a comprehensive suite of engagements that took a water writ-large view in response to the CPS's call for multi-year approaches to increase development effectiveness. The combined lending and technical assistance program included a DPL for climate change adaptation in water, the Program-for-Results WSS project in Oaxaca, and other technical assistance support toward developing CONAGUA's Water Agenda 2030. Together, these programs put forth a comprehensive strategy to strengthen multiple levels of government toward more efficient and sustainable water management.

Relevance of Design: Modest

48. The Project was designed to meet the PDO based on the recommendations of the latest analytical work, which showed how sector spending on efficiency improvements was at a low 14 percent in 2008[13] and that improved management of existing assets would be more effective than building new infrastructure (Olson and Saltiel, 2006). The challenges of the sector were well documented, including lack of financial and technical autonomy of utilities, high staff turnover rates, and politicization of tariff setting. The Project was effectively designed to improve efficiencies within the confines of these institutional challenges. It focused, for example, on billing and collections over attempting to influence tariff policies.[14]

49. The PDO was a single, clear objective and was linked directly to Sub-Component 2a (on technical assistance), Sub-Component 2b (on efficiency improvements), and Sub-Component 2c (on results-based models for efficiency improvements). The large majority of the funds were allocated to Sub-Component 2b, where the majority of results were expected. The indicators leveraged existing measurement systems and were adequate for measuring the PDO. Targets were adequately set assuming 50 participating utilities; however, as the actual number of participating utilities grew to 91, the targets were, in hindsight, relatively weak. There was disconnect between the scale of the investments, which had to be conducted in one year given the lack of multi-annual budget allocation, and the expected outcomes, which generally take several years to achieve. As the Borrower's ICR states, "An important conclusion is that no action among those established in the program's Operations and Procedures Manual has an impact in isolation: complementary actions are required to secure sustained improvements in efficiency."

50. Moreover, the flexible, framework structure did not provide a cap on the number of potential participating utilities or ensure more strategic investments per utility, which may have

[13] CONAGUA. 2009. *Situación del Subsector Agua potable, Alcantarillado y Saneamiento*. Edición 2009.

[14] For example, the Bank estimated that increasing collection rates to 95 percent across the country would generate revenues equal to all federal sector subsidies provided in 2003 – all without raising tariffs (World Bank, 2006).

helped attribute the impact of the Project's actions toward the Project's indicators. Another shortcoming in the design was that the Project did not target funds toward commercial efficiencies over physical/energy efficiencies despite the fact that this was a key lesson from PATME, and three of the four key indicators (1, 3 and 4) were directly related to commercial efficiency. Such a narrower scope could have lessened the work load for CONAGUA, allowing more human resources to be put toward Component 1.

51. Success depended on CONAGUA's capacity to help utilities set baselines, objectives and targets early in the Project. Yet the agency lacked the capacity to enforce reporting by utilities, and to sanction those utilities not reporting.

3.2 Achievement of Project Development Objectives

Rating: Modest

52. Achievement of the PDO to improve the efficiency of participating water utilities through the provision of technical assistance (Sub-Component 2a) and financing (Sub-Component 2b) is rated modest.

53. The Project reached 25 of Mexico's 31 states (see Map). At the end of the Project, 492 actions had been implemented across 91 municipalities. Despite the geographic dispersion, the budget was relatively concentrated: half of the Project funds went to 15 percent of participating municipalities in just four states (see Annex 2).

54. Technical Assistance Sub-Component 2a comprised 5 percent of the total budget and 10 percent of the total actions implemented. Of the 44 actions for technical assistance, 21 went to support one utility, Estado de Mexico, and nearly half of them were for the completion of diagnostics, a requirement for PROME's investment funding. While the results framework does not measure the impacts of Sub-component 2a, they are likely quite significant for sector development. For example, a sectorization study completed in Guanajuato prioritizes investments that, once implemented, are expected to increase physical efficiency by 10 percent, reduce unaccounted for water by a third, and save US$1.5 million in energy costs per year.

55. All key indicators of the Project measure progress on the investments made under Sub-Component 2b. At Project completion in June 2016, 1 out of 4 outcome indicators had been exceeded: 8 out of 5 utilities showed an increase in global efficiency of at least 2 percent[15]; 2 out of the 4 outcome indicators had been partially met: 25 out of 30 utilities showed an increase in revenue of at least 5 percent over the course of the Project; and 7 out of 8 utilities decreased energy consumption per cubic meter of water produced by 5 percent; and 1 out of 4 outcome indicators fell short: 12 out of 30 utilities showed commercial efficiency improvement of 5 percent or more. Overall, only 22 utilities report efficiency gains; the other 69 participating utilities have not reported any progress, either for lack of data or lack of measurable impacts.

56. Regarding intermediate indicators, 2 out of 5 indicators related to Component 2 were achieved; only 2 out of 3 indicators related to Component 1 were partially achieved, and the other

[15] Since this is a revised outcome indicator, the efficiency is estimated for the two separate periods of the Project, prior to the December 1, 2014 restructuring when about 34 percent of the loan was disbursed, and after the restructuring, when the new outcome indicator came into effect and 66 percent of the loan was disbursed. So, the target was 96 percent achieved.

indicator was not achieved. This is partly a result of the lack of capacity and incentives for CONAGUA to use the Project funds to finance knowledge activities.

57. Nearly one quarter (22 of 91) of participating utilities in 10 states have made progress on at least one key indicator, showing improved revenue collections, lower energy consumption, better commercial efficiency or better global efficiency (see Table A2.8). These utilities were allocated 40 percent of all Project funds and some Project benefits and results can be seen in this group.

58. States that received a large portion of funds (see Table A2.2) generally reported some results in their utilities, but others, such as Sinaloa (with 11 percent of total funds), reported no results. At the other end of the spectrum, most states receiving few funds did not report results, with the exception of Nayarit (with less than 1 percent of total funds) reporting results in multiple years across multiple indicators.

59. There are a few identifiable characteristics of utilities reporting results, including: (i) participation in the Project for at least two years (utilities reporting results had, on average, participated 2.2 years in the Project, compared with 1.6 years for those not reporting results); (ii) receipt of a large portion of the total financing available; and (ii) relatively larger investments in customer metering (8 percent more) and district metering areas (DMAs) (2.4 percent more) than average across all utilities, as well as slighter lower levels of investments in electromechanical equipment and rehabilitation of network infrastructure.

60. As corroborated by the borrowers' ICR, higher capacity utilities had greater access to Project funds because they were able to execute the technical assistance and investments within the 1-year budget cycle. While on average each municipality implemented 5 actions over the course of the 6-year Project, the top 15 percent of utilities (in terms of numbers of actions implemented) implemented 15 actions each, with one municipality (Puerto Vallarta) alone implementing 31 actions.

61. **Commercial efficiency.** Thirty-six percent of funds were spent toward commercial efficiency improvements, with nearly 30 percent of all Project funds invested in improved customer metering. In a top-performing utility, such as SEAPAL in Puerto Vallarta, in the State of Jalisco, metering forms the basis for revenue generation, managing losses, and sound customer management. The utility has invested MXN 67 million (US$3.6 million) between 2013 and 2015 including customer meters and DMAs to detect and control for leakages. Under this Project (and PATME), the utility has been able to reduce water production while serving a customer base that grew by 35 percent over the last 10 years.

62. **Energy efficiency.** Around 18 percent of Project funds went toward making energy efficiency improvements, yet the results are critical. Energy is a large part of any utility's operating budget, and thus any savings in energy is generally of great benefit to a utility's bottom line, freeing up funds for other type of investments.

63. The utility in the city of Guanajuato, in the state of Guanajuato, invested MXN 59 million (US$3.2 million) in 2013 and 2014 across an array of investment types aimed at reducing costs. During this time, water production fell while the number of users increased. The water saved is critical for ensuring reliable supply for an area that requires 70 percent from groundwater sources, with high-energy costs for extraction. The replacement of electromechanical equipment reduced energy needed for pumping, which was further improved by macro-metering on regulation tanks, which helped the utility stop using energy during peak hours. Perhaps the biggest benefit of the Project was a sectorization study completed for the entire municipality. Investments based on this

study are expected to increase physical efficiency by 10 percent, reduce unaccounted for water by a third, and save US$1.5 million in energy costs per year.

64. **Global efficiency.** Global efficiency is a product of commercial efficiency and physical efficiency. It is rare that a utility can make a two percent increase in global efficiency in 2-3 years. Seven utilities did so during the course of the Project. In fact, the majority of Project funds (46 percent) were spent toward physical efficiency improvements. Within this category, the largest share went to rehabilitation of network infrastructure.

65. Movement on this indicator requires programmatic investments to gain a range of efficiencies. The utility in the municipality of Tlanlepantla, State of Mexico, participated in the Project for 2 years and implemented 5 actions toward all 3 types of improvements for a total investment of MXN 25 million (US$1.4 million). Access to the Project was critical for increased in global efficiency between 2013 and 2014. New telemetry systems and the replacement of electromechanical equipment have reduced both labor and energy costs. Combined with modern metering, the utility can remotely manage aspects of its operations with reduced staff time.

66. **Conclusion.** At Project completion, the Project nearly achieved its objective (one of the outcome indicators was exceeded, two partially met and one felt short). However, given that the participating utilities received support from other Federal Programs for similar measures funded by the Project and the difficult to separate the Bank's financing specific contribution to the overall achievement of the Project objective, the efficacy rating is adjusted to modest. However, it should be noted that the Project support was critical in ensuring that the appropriate steps were undertaken by the participating utilities, contributing directly or indirectly to greater efficiency improvements in the near future.

3.3 Efficiency

Rating: Substantial

67. During appraisal, a financial analysis was conducted for three utilities representative of those expected to participate in the Project. The evaluation was based on an indicative group of activities financed under PATME, a previous project with similar characteristics, yielding estimated internal rates of return in the range of 19.4 percent and 35.9 percent. Attempts were made to conduct an economic analysis. However, the lack of data on opportunity cost, economic cost of water saved, and capital invested in state water subsidies rendered the economic analysis largely inconclusive.

68. At completion, detailed ex-post financial and economic cost-benefit analyses were carried out.[16] Due to the availability of data on investments and associated benefits, the analyses were conducted for a sample of four operators that participated in the Project, which executed 18 percent of the total investment. All types of interventions were included in the sample, which is considered representative of the total set of interventions supported by the Project. Annex 3 presents details of the operators included in the sample, as well as the detailed financial and economic analyses. The evaluation was carried out using cost-benefit analysis, and accounted for: **economic benefits**, the savings of operating economic costs when physical losses were reduced or energy-usage improved; consumer benefits when water supply improved and/or rationing decreased; and **financial benefits**, savings of operating financial costs and increased in revenues. The evaluation also accounted for

[16] The economic analysis uses the financial costs without taxes.

other complementary investments financed by the broader federal program supported by CONAGUA providing support to utilities, namely APAZU.

69. There are some caveats associated with the ex-post analyses. First, the sample of utilities included on the analyses are those with better information, with in turn generally perform better. Thus, the results may be skewed towards well-performing utilities. Second, many of the activities supported by the Project were part of larger packages of financial support provided by federal and state programs. Thus, benefits from efficiency improvements cannot be attributed solely to PROME, but to a mix of federal programs. For two utilities in the sample, Guanajuato and Puerto Vallarta, information on all efficiency investments under all programs could not be obtained. The analysis assumes the investments from other programs were three times as much as the investments under PROME and APAZU. Therefore, it is possible that the corresponding results are skewed. Third, neither the design nor the implementation of the Project made provisions for measurement tools of benefits attributed to specific interventions. Lastly, available information to measure economic benefits was not sufficient to make a comprehensive economic evaluation.

70. Results of the financial cost-benefit analysis (see Table 2) show an average internal financial rate of return of 13 percent for the four operators included in the sample, and a net present value at a discount rate of 9 percent (same rate used at appraisal) of US$12 million. The economic cost-benefit analysis results show an average internal economic rate of return of 13.6 percent, and a net present value of US$11 million at a discount rate of 9 percent (same as at appraisal, although at present a 6 percent discount rate is recommended by the World Bank).

Table 2. Results of the Financial and Economic Analyses

Service Providers	Financial Analysis		Economic Analysis	
	Net Benefit ('000 US$)	IRR	Net Benefit ('000 US$)	IRR
Guanajuato	2,937	11.6%	3,895	12.8%
Puerto Vallarta	2,798	11.5%	84	9.1%
Ciudad de Mexico	2,886	16.7%	3,830	20.3%
San Luis Potosi	3,093	28.4%	2,994	31.7%
Total /Average	11,714	13.2%	10,803	13.6%

Overall Outcome Rating: Moderately Unsatisfactory

71. The overall development outcome is rated Moderately Unsatisfactory.[17] Relevance of the development objective is rated high as improving the efficiency of water utilities was and still remains an important challenge to deliver sustainable water supply and sanitation services in Mexico. However, there were shortcomings in the design of the Project, which is rated modest. Although the Project components were complementary, the design lacked mechanisms to channel funds toward larger impact results across fewer utilities. Given that the Project was implemented

[17] There is a net disconnect between the last ISR rating (of moderately satisfactory) and this ICR (of moderately unsatisfactory) due to three reasons. First, the Task Team's ambitious rating was a reflection of the positive move from a very low to a very high disbursement ratio in the final years of Project implementation. Second, while the final ISR's ratings for Component 1 progress was properly assessed as moderately unsatisfactory, the lack of performance did not have much impact on achieving the PDO, which is much more aligned with Component 2 than with Component 1. Third, the ISRs reflected achievement of results, but not attribution, per se, given the data was not available. M&E was rated moderately unsatisfactory in ISRs toward the end, but the implications of not having the data were not considered in the rating for achievement of the PDO. For this reason, Bank performance also receives a rating of moderately unsatisfactory in this ICR.

in parallel with other Federal Programs providing similar support, it faced attribution challenges. Although the Project nearly achieved its objective, the efficacy of the Project is also rated modest. Finally, efficiency is rated substantial given the favorable financial and economic rates of return conducted for a sample of utilities, 13.2 percent and 13.6 percent, respectively.

3.5 Overarching Themes, Other Outcomes and Impacts

Poverty Impacts, Gender Aspects, and Social Development

72. A 2013 study by the World Bank[18] shows that the average family in the Valle de Mexico pays an additional MXN 4,000 per year to cope with water supply of services across Mexican cities. This is especially critical in the Valle de Mexico as water resources per capita are being drastically reduced.

73. The Project did not explicitly target women or the poor as it did not focus on beneficiary-level impacts. However, improved efficiencies in a utility can have positive spillover effects for vulnerable populations. First, the water saved safeguards future supply. Second, lower costs can translate into lower service fees in the long-run. The Project with its support to micro-metering is setting the stage for many utilities to improve their monitoring of customer use. This can aid tremendously in demand management programs by identifying wasteful practices. Finally, as utilities get on an improved financial footing, they can expand services to poor areas previously too costly to reach.

Institutional Change/Strengthening

74. The Project potentially strengthened capacity in many of the 91 participating utilities. CONAGUA's trainings on efficiency improvements reached 670 people. These trainings were provided as complementary assistance to the Project's participating utilities and are thus counted in the results framework. However, they were funded through CONAGUA's own resources. Moreover, Project management related trainings conducted by CONAGUA improved utility capacity in planning, procurement, financial management, environmental and social management, and monitoring and reporting.

75. Perhaps the most valuable benefit of the Project were the standardized diagnostic[19] and bidding templates, which simultaneous built the capacity of several utilities in planning and procurement. These tools, which formed part of the multi-year sector development plan signed between the States and CONAGUA (*Anexo Técnico*) as Annex to the existing Coordination Agreement (Financial Support Agreement), are still being used today.

76. The Project itself provided many lessons to CONAGUA on how best to improve efficiency in utilities across the country. These lessons are being taken up by other programs and include some key mechanisms for ensuring results reporting, better prioritization of investments, ensured delivery on agreed investments, and stronger linkages between sector goals and investment values.

Other Unintended Outcomes and Impacts (positive or negative)

N/A

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18 World Bank, 2013.

19 Estudio Simplificado de la Situación del Sistema (ESSA) and Diagnóstico Integral de Planeación (DIP).

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

N/A

4. Assessment of Risk to Development Outcome

Rating: Moderate

77. The risk to development outcome rating is moderate. PROME has contributed to the improved financial footing of some utilities through commercial or physical efficiency improvements that have reduced costs and/or increased revenues. More funds may be needed to cover the costs of additional physical investments, and some utilities, such as those with increased efficiencies, may be better off than others in covering those costs. Moreover, the continuation of similar programs like APAZU is helping to build on PROME successes.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

Bank Performance in Ensuring Quality at Entry

Rating: Moderately Unsatisfactory

78. The Project was designed to meet the PDO and was based on the recommendations of the latest analytical work. Furthermore, the Project design set out to improve upon the predecessor project and its lessons learned. However, as a framework project too many details were left to be worked out during implementation. The flexible structure worked well under PATME, which targeted only 18 utilities, mostly well-performing, ones but was far less effective for tracking PROME's heterogeneous group of 91 utilities. PATME had already shown that utilities were not using standard indicators, and this became a much more prominent challenge under the Project. The team should have been more aware of the data challenges that needed to be overcome early on.

79. CONAGUA clearly stated potential barriers to implementation of Sub-Component 2c during the preparation phase. The Bank team could have considered to renegotiate its inclusion during appraisal. In addition, the PAD could have been more candid about incentives for CONAGUA to disburse against Component 1.

Quality of Supervision

Rating: Moderately Unsatisfactory

80. The World Bank in general was diligent in supervising the Project. Sufficient resources were dedicated to monitoring social and environmental safeguards and financial management, including extra assessments and external audits to ensure compliance. Missions included a diverse range of specialists and site visits were made to four utilities to assess local results.

81. With respect to procurement, the World Bank was timely and clear in raising potential issues and responding to client concerns on procurement (quality and speed)[20]. The Bank team compromised with CONAGUA to improve the pace of implementation. However, the change in the thresholds for prior review came too late, and did not have an impact on the bulk of procurement processes in 2014.

82. Although there were three task team leaders over the course of the Project, consistency in team members ensured smooth transitions and institutional memory.

83. The World Bank continually provided new ideas to strengthen capacity and systems to foster better and more sustainable Project outcomes, including drafting the national policy on efficiency; bringing Brazilian counterparts to meet with CONAGUA on its national information systems; and identifying best practice examples to be documented to help other struggling utilities. Some of these actions were financed through complementary Bank-funded technical assistance and none of the resulting recommendations was carried forward by CONAGUA, which maintained a keen focus on Sub-Components 2a and 2b. The World Bank team also attempted to re-engage the incoming administration in 2012, offering new ways of achieving the same objectives.

84. The release of monitoring data should have been a pre-requisite to the restructuring. Such information would have guided the team to re-design the key indicators in a way that better represented the interventions being financed and addressed the attribution challenge. ISRs could have been more candid about the significance of M&E challenges on the World Bank team's true understanding of the Project's contributions to broader outcomes at the utility level as measured by individual key indicators.

85. At the end of the Project, zero loan proceeds had been disbursed under Component 1, yet two intermediate indicators remained in the results framework. Partial results reported against these indicators (number of people trained, workshops and case studies) were achieved with CONAGUA's own funds. By issuing a closing note in lieu of conducting a second restructuring, the World Bank team left a results framework that paints an inaccurate picture of the Project.

86. The Bank team should have done more to address the weak M&E system and help CONAGUA address challenges related to collecting and interpreting data for all participating utilities.

87. In retrospect, the Bank Team missed an opportunity to restructure the Project in a meaningful manner and align it with Government priorities and interest at mid-course.

Justification of Rating for Overall Bank Performance

Rating: Moderately Unsatisfactory

88. Based on Moderately Unsatisfactory ratings of Bank performance at entry and during supervision, the overall Bank performance is rated Moderately Unsatisfactory**.**

[20] However, CONAGUA acknowledged that there were delays in the issuing of some World Bank's No Objections.

5.2 Borrower Performance

Government Performance

Rating: Moderately Satisfactory

89. The Government of Mexico contributed US$62 million in Project funds, showing its commitment to developing the urban water supply sector. These counterpart funds came from a mix of State, municipal and utility (cash flow) resources, and were used to leverage each dollar of the Bank's investment at the activity level. BANSEFI, as financial agent, provided another layer of quality oversight and kept excellent records of all Project activities.

90. CONAGUA was not successful in allocating resources for the first three years of the Project as a result of the impacts of the global financial crisis on the country's fiscal space. Once the situation improved, funds were made available to enable implementation in just three years. Unfortunately, the delay resulted in lost opportunities to learn from the initial years of the Project to potentially improve implementation and outcomes.

Implementing Agency or Agencies Performance

Rating: Moderately Satisfactory

91. Despite the slow start, CONAGUA was able to deliver the Project 18 months after the original closing date, disbursing all the funds in about half the time initially allocated. Safeguards and fiduciary policies were adequately applied, and CONAGUA actively pursued new avenues to improve procurement efficiency over the course of Project implementation.

92. CONAGUA was more focused on implementing efficiency improvements than Component 1 and Sub-Component 2c. The latter was dropped and some activities under Component 1 were implemented using CONAGUA's own funds, rather than the loan proceeds, which saved funds to be used for traditional investments. Low capacity prevented more progress on Component 1.

93. CONAGUA also faced capacity and legal constraints to track and monitor the indicators for the results framework.

Justification of Rating for Overall Borrower Performance

Rating: Moderately Satisfactory

94. Based on the moderately satisfactory ratings of the government and CONAGUA, the overall performance rating of the Borrower is also moderately satisfactory. The government was able to fully disburse the loan in a short amount of time and working with over 90 individual utilities, while also building local capacity.

6. Lessons Learned

95. The main lessons learned are summarized as follows:

- Project design needs to take into account the limitations in the legal framework to introduce innovative delivery mechanisms (such as output-based disbursement) and ensure full Borrower's ownership.

- Enforcement mechanisms for reporting and capacity for monitoring are pre-requisites for utility performance improvement programs. Project readiness may require capacity building and technical assistance to ensure a minimum level of metering; good management of commercial and financial systems; and legal mandates for reporting.

- Framework projects can provide flexibility to address the most pressing sector needs, but when launched on a large scale should be sufficiently structured to prioritize investments that will help achieve results. Spreading funds among a wide range of utilities with different size, capacities and objectives dilutes the effectiveness and efficiency of Bank resources. Eligibility criteria should help narrow the number or type of sub-national entities to be supported, and those criteria should be enforced.

- The Bank should be keenly aware of its comparative advantage and potential impact on a given sector during project design. In the case where other investments are underway in the same sector, the project should include measures to track attribution of Bank funds toward project-specific results. In Mexico, where non-additionality is an external factor for all sector investments, another option is to design results frameworks to measure the entire national investment program, with a portion of the results attributable to the Bank based on its investment vis a vis the whole program.

- Utility performance improvements require investments across multiple types of efficiencies. Well-performing utilities already have a minimum level of service quality and good practices in place, and can thus achieve more results with the same level of funding as other utilities. This presents a trade-off between achieving high-level results and supporting less developed utilities. Such utilities can also be targeted to pilot output-based disbursement programs, but it is critical that the Bank understand the local appetite for innovation, and have the interest and support of the implementing agency before designing such innovative components. If the minimum conditions for success are not there, the Bank should not insist on including such components.

- The Bank's added value, especially with high capacity clients, is in bringing global best experiences and practices to improve sector performance. In this case, a lot of time and effort was spent on processing a number of small procurement packages, instead of focusing on knowledge sharing and sector policy dialogue. To advance innovative approaches that require small-scale procurement, the Bank should consider more flexible procurement rules with higher thresholds that promote efficiency without compromising quality.

- The experience gained implementing traditional Bank projects should open the door to more innovative types of interventions if supported by strong leadership. The Bank should be aware of such potential tradeoffs especially when working with sophisticated clients such as Mexico.

- While Bank programs can help build sub-national capacity in sound procurement, financial management and safeguard principles, it may not always be an efficient use of resources. The implementation of Bank loans can have a large impact via "on-the-job" training, but the costs and benefits of such arrangements should be studied

especially when implementing through a host of smaller, heterogeneous institutions. Moreover, projects working with sub-national institutions in Mexico should be aware of short municipal political cycles and how they impact local institutional capacity and sustainability of outcomes over transition periods.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

7.1 Borrower/implementing agencies

96. Annex 6 provides a summary of the Borrower's ICR. There is consistency on the findings between this ICR and the Borrower's ICR. First, both ICRs site the fragmentation of the activities across a large number of participating utilities as a major factor in the lack of significant outcomes in individual activities that can be attributable to the Project.

97. Second, both noted the procurement inefficiency presented by multiple layers of approvals, generating delays. However, in response to the note that the Bank was inflexible, it is important to note that the Project was designed with standard procurement rules, and that the Bank agreed to change twice the thresholds for prior/post review, re-evaluating the risk assessment and seeking greater flexibility. The Bank also put more emphasis on the constraints of the one year budget cycle in the delay and cancellation of some activities.

98. Third, in addition to the Borrower's comment that M&E roles and responsibilities should have been clearer, the Bank notes that the Project should have concentrated on helping utilities build the tools and capacity to measure efficiency (metering and commercial systems) before reliable data could be expected.

99. The Borrower through CONAGUA could have further justified cancellation of Component 1 and Sub-Component 2c. By indicating that the size and scope for Component 1 were over designed, CONAGUA does not explain why capacity was not enhanced to be able to delivery on the Component as initially designed.

100. The Borrower also provided comments on the draft ICR, which are included in Annex 6; and requested to make adjustments in specific sections of the document.

7.2 Cofinanciers

N/A

7.2 Other partners and stakeholders

N/A

Annex 1: Project Costs and Financing

(a) Project Cost by Component (in US$ Million equivalent)

Components	Appraisal Estimate (US$ millions)	Actual (US$ millions)	Actual as % of Appraisal Estimate
Component 1: WSS sector information and knowledge management improvement	4.75	0.00	0
Component 2: Modernization of the services of participating water utilities	157.00	161.75	103
Sub-Component 2a: Technical Assistance	7.00	10.09	144
Sub-Component 2b: Classical Efficiency Investments	145.00	149.66	103
Sub-Component 2c: Pilot Output-Based Efficiency Component	5.00	0.00	0
Total Baseline Cost	161.75	161.75	100
Physical Contingencies	0.00	0.00	0
Price Contingencies	0.00	0.00	0
Total Project Costs	161.75	161.75	100
Front-end fee IBRD	0.25	0.25	100
Total Financing Required	162.00	162.00	100

(b) Financing

Source of Funds	Appraisal Estimate (US$ millions)	Actual (US$ millions)	Percentage of Appraisal
Borrower	62.00	62.00	100
International Bank for Reconstruction and Development	100.00	100.00	100

Annex 2: Outputs by Component

Component 1: WSS Sector Information and Knowledge Management Improvement

This Component was to include two types of support to CONAGUA: management of information activities, and management of knowledge activities. Activities under this Component were carried out using CONAGUA's own funds rather than loan proceeds. They included:

1. Twenty-five workshops covering three themes were carried out in multiple locations across the country:

    a. Participants included utility staff from a range of fields including management and technical specialists, administrators, and commercial and operational staff.

    b. Themes were: Strengthening commercial systems (Sept – Oct. 2012); Theory and practice of increasing electromechanical efficiencies (Sept – Oct. 2012); and Water and energy savings (March – Sept. 2013)

    c. A total of 660 utility staff were trained during these events.

2. A 2010-2013 PROME Evaluation was carried out by IMTA, including a workshop to disseminate results.

    a. The evaluation reviewed 143 actions across 27 municipalities and 10 states.

    b. The report includes some short case studies on successful practices within PROME and provided some low-level recommendations for improving PROME.

    c. The results were disseminated at a workshop in 2014, providing utilities a chance to hear about successful cases under PROME.

    d. The recommendations were not taken up by CONAGUA or the Bank to improve the design of PROME starting in 2014. This was a missed opportunity and partly a results of not having sufficient time or capacity to focus on institutional/knowledge activities during the final three years of the Project.

Component 2: Modernization of the Services of Participating Water Utilities

This Component included three sub-components: Sub-Component 2a on technical assistance, diagnostic and investment plans to prioritize efficiency improvement investments financed by PROME or other federal programs, and other technical studies; Sub-Component 2b on classical efficiency investments. financing of typical operational and commercial improvements based on diagnostic studies at the utility level; and Sub-component 2c on pilot output-based efficiency investments, financing similar activities as Sub-component 2b but using outputs, rather than inputs, as the basis for disbursement.

Sub-Component 2a and Sub-Component 2b

Under these two sub-components, 492 actions were implemented across 91 municipalities, with details as follows:

1. Budget by municipality:

    a. Half of PROME funds went to 15 percent of participating municipalities in just four states.

    b. The majority of utilities (44 utilities) received between US$100,000 and US$1 million. The municipality with the smallest allocation received US$8,000 (Francisco Madero), while that with the largest allocation received US$6 million (Distrito Federal).

2. Budget by type of investment, and linkages with key indicators:

    a. While movement in any one of the four key indicators can be attributed to various types of investments or investment packages, the theoretical/assumed linkages are discussed below:

        - 36 percent of Project funds went to commercial improvements. These can be linked to improvements in revenue generation (Key Indicator 1), commercial efficiency (Key Indicator 3), and global efficiency (Indicator 4).

        - 17 percent of Project funds went to energy efficiency improvements. These can be linked to energy efficiency improvements (Key Indicator 3).

        - 47 percent of Project funds went to physical efficiency improvements. These are linked to improvements in global efficiency (Key Indicator 4).

3. Number of actions and average cost:

    a. While on average each municipality implemented 5 actions over the course of the 6 year project, the top 15 percent of utilities implemented 15 actions each, with one municipality (Puerto Vallarta) alone implementing 31 actions.

    b. The average cost of an individual action was US$192,000 with a range of US$75,000 (improvement in water sources) to US$386,000 (improvement in water storage capacity).

The various efficiencies under the Project were defined as follows:

Physical efficiency: It reflects the system´s capacity to deliver water to its users´ network and the magnitude of existing leakages. It is calculated as the ratio between the volume of water billed to customers, and the volume of water produced by the utility. It is expressed as a percentage.

Commercial efficiency: It measures the relation between the amount collected for services provided and the amount billed for those services. It is expressed as a percentage.

Global efficiency: It encompasses both physical efficiency and commercial efficiency and is a multiplication of both. It is expressed as a percentage.

$$\text{Global efficiency} = \text{Physical efficency (\%)} \times \text{Commercial efficiency (\%)} = \left(\frac{\text{Biled volumen}}{\text{Produced volumen}} \times 100\right) \times \left(\frac{\text{Collected amount}}{\text{Billed amount}} \times 100\right)$$

Sub-Component 2c

No outputs were executed under Sub-Component 2c.

Table A2.1: Portion of Total Loan Going to Each Type of Action and Category

Type of Action and Category	% of PROME Budget
Commercial	36.16%
Commercial and billing system replacement/update	0.69%
Sub-Component 2a. Technical assistance	0.19%
Customer database update	1.91%
Customer meter installations	29.81%
Implementation or improvement of technological platform (hardware and software)	1.88%
Implementation or updating customer services and complaints management process	0.54%
Re-engineering in meter reading, billing and collection sub-systems	1.13%
Energy	16.53%
Sub-Component 2a. Technical assistance	0.80%
Electromechanical equipment replacement or refurbishment	12.42%
Operation optimization	3.31%
Physical	47.31%
Sub-Component 2a. Technical assistance	4.14%
DMA	5.94%
Hydraulic system optimization	4.64%
Improvement in water sources	0.93%
Improvement in water storage capacity	7.38%
Leak detection and repair	2.05%
Network register and hydraulic modeling	3.00%
Pressure control	1.73%
Rehabilitation of network infrastructure	13.66%
Source and district-level meter installation	3.85%
Grand Total	***100.00%***

Table A2.2: Disbursements by State (lowest to highest)

State	Total Disbursements (USD)	Percent of Total Disbursements
Querétaro	$231,367.65	0.26%
Baja California sur	$703,413.83	0.79%
Tabasco	$709,910.65	0.80%
Nayarit	$779,911.58	0.88%
Tlaxcala	$829,640.52	0.93%
Puebla	$877,443.82	0.98%
Yucatán	$1,045,100.47	1.17%
Morelos	$1,266,037.22	1.42%
Nuevo León	$1,387,827.41	1.56%
Michoacán	$1,389,907.80	1.56%
Aguascalientes	$1,512,378.25	1.70%
Hidalgo	$1,677,553.01	1.88%
Chihuahua	$1,996,880.70	2.24%
Baja California	$2,266,856.19	2.54%
Oaxaca	$2,636,317.14	2.96%
San Luis Potosí	$2,684,001.24	3.01%
Tamaulipas	$3,016,618.21	3.38%
Durango	$3,279,433.90	3.68%
Veracruz	$3,675,713.39	4.12%
Distrito Federal	$6,483,295.62	7.27%
Coahuila	$6,912,139.42	7.76%
Jalisco	$9,030,733.28	10.13%
Sinaloa	$9,671,924.51	10.85%
Guanajuato	$11,875,639.85	13.32%
Edo de México	$13,188,514.35	14.80%
Grand Total	***$89,128,560.01***	***100.00%***

Table A2.3: Disbursements per Municipality

Municipality	Total PROME Budget (USD)	Municipality	Total PROME Budget (USD)
Distrito Federal	$6,483,295.62	Salamanca	$581,279.27
Los Mochis (Ahome)	$4,325,270.46	Tecate	$562,133.24
Guadalajara	$4,302,427.16	Atlixco	$521,778.52
Saltillo	$4,158,041.24	Chimalhuacán	$519,415.15
Puerto Vallarta	$3,572,179.52	Córdoba	$472,538.42
Celaya	$3,546,471.35	Guasave	$430,935.69
Guanajuato	$3,173,702.40	Victoria	$388,171.56
Cuautitlán Izcalli	$2,889,370.14	Tampico	$379,257.41
Oaxaca	$2,636,317.14	Huixquilucan	$369,214.90
León	$2,516,974.90	Aldama	$364,476.87
San Luis Potosí	$2,398,058.21	Huejutla de Reyes	$350,883.77
Mazatlán	$2,351,882.03	Tlaxcala	$325,471.84
CEA Veracruz	$2,336,283.12	Nicolás Romero	$312,775.38
Durango	$2,138,033.76	Chicoloapan	$308,358.08
Torreón	$1,934,555.65	Apizaco	$305,743.01
La Paz	$1,791,668.79	Zacatlán	$304,732.24
Chalco	$1,742,198.44	Mexicali	$288,512.89
Naucalpan	$1,566,739.56	Matehuala	$285,943.03
Aguascalientes	$1,512,378.25	Zinacantepec	$255,571.87
Tijuana	$1,416,210.06	San Juan del Río	$231,367.65
Nuevo León	$1,387,827.41	Tultitlan	$227,570.18
Tlalnepantla	$1,372,503.52	Ixtapaluca	$219,134.76
CEA Morelos	$1,266,037.22	Coacalco	$215,939.12
Chihuahua	$1,262,287.26	Ramos Arizpe	$181,497.10
Acambaro.	$1,175,134.12	Tulancingo de Bravo	$153,343.46
CEA Jalisco	$1,156,126.60	Coatzacoalcos	$129,454.05
Gómez Palacio	$1,141,400.14	Atotonilco de tula	$121,064.20
Nezahualcóyotl	$1,140,920.63	Tizayuca	$116,627.56
Merida	$1,045,100.47	Zacatelco	$93,483.63
San Miguel de Allende	$882,077.82	Banderilla	$88,548.43
Navolato	$866,133.44	Zumpango	$78,482.45
Culiacán, Sin	$856,713.85	Metepec	$62,464.66
Pachuca	$813,278.87	Coatepec	$61,669.48
Salvador Alvarado	$798,652.31	Chiautempan	$54,031.70
Bahía de Banderas	$779,911.58	Nextlalpan	$53,000.91
Morelia	$762,452.03	Zacualtipán	$52,602.50
Cd. Juárez	$734,593.44	Tepeaca	$50,933.05
Tabasco	$709,910.65	Nanacamilpa	$50,910.34
Tecámac	$709,730.65	Escuinapa	$42,336.72

CD. Victoria	$700,676.98	Tepeji del Rio	$39,538.79
Monclova	$638,045.43	Atlacomulco	$30,740.00
La Piedad	$627,455.78	Tenango del Valle	$26,129.00
Reynosa	$602,456.32	Apan	$22,218.87
Xalapa	$587,219.89	Francisco I. Madero	$7,994.98
Comision Estatal Tam.	$581,579.07		

Table A2.4: Municipalities Grouped by Disbursed Amount

Total Budget per Municipality	Number of Municipalities
> $2m	14
$1m < $2m	15
$100k<$1m	44
< 100k	16

Table A2.5: Average Cost of Each Type of Action

Type of Action	**Average Cost (USD)**
Improvement in water storage capacity	$386,700.49
Customer meter installations	$316,309.00
Network register and hydraulic modeling	$242,830.42
Hydraulic system optimization	$217,706.33
Electromechanical equipment replacement or refurbishment	$197,599.07
Customer database update	$189,568.50
Rehabilitation of network infrastructure	$176,411.17
Operation optimization	$173,787.92
Leak detection and repair	$152,160.65
Pressure control	$140,043.14
Implementation or improvement of technological platform (hardware and software)	$139,982.77
DMA	$129,071.19
Re-engineering in meter reading, billing and collection sub-systems	$125,991.57
Implementation or updating customer services and complaints management process	$120,596.02
Source and district-level meter installation	$118,319.68
Sub-Component 2a. Technical assistance	$103,831.56
Commercial and billing system replacement/update	$77,384.00
Improvement in water sources	$75,577.10
Average Activity Cost	**$192,918.96**

Table A2.6: Most Popular Types of Actions

Type of Action	Number of Times Action Used	As % of Total Actions
Customer meter installations	84	18%
Rehabilitation of network infrastructure	69	15%
Electromechanical equipment replacement or refurbishment	56	12%
Technical assistance (Sub-Component 2a)	44	10%
DMA	41	9%
Source and district-level meter installation	29	6%
Other	139	30%

Table A2.7: Activities Eligible for Funding under Component 2 by Type of Improvement

Physical	Energy	Commercial
Network register and hydraulic modeling	Study (Technical Assistance)	Commercial and billing system replacement/update
District Metering Areas	Operation optimization	Customer meter installations
Source and district-level meter installation	Electromechanical equipment replacement or refurbishment	Customer database update
Leak detection and repair		Re-engineering in meter reading, billing and collection sub-systems
Hydraulic system optimization		Implementation or improvement of technological platform (hardware and software)
Pressure control		Implementation or updating customer services and complaints management process
Rehabilitation of network infrastructure		Study (Technical Assistance)
Improvement in water sources		
Improvement in water storage capacity		
Study (Technical Assistance		

Table A2.8: Utilities Reporting Progress on the Results Framework (by Indicator)

State/OO	Total Investment (MXN)	Indicator Met Between 2011 and 2015			
		1	2	3	4
Chihuahua	**$37,676,994.34**				
Cd. Juárez	$13,860,253.58	X		X	
Chihuahua	$23,816,740.76	X		X	X
Coahuila	**$36,501,049.92**				
Torreón	$36,501,049.92	X			X
Distrito Federal	**$122,326,332.39**				
Distrito Federal	$122,326,332.39	X	X	X	
Edo de México	**$127,658,755.57**				
Cuautitlán Izcalli	$54,516,417.74			X	
Naucalpan	$29,561,123.77	X			
Tecámac	$13,391,144.29	X			
Tlalnepantla	$25,896,292.77			X	X
Tultitlan	$4,293,777.00	X		X	
Guanajuato	**$224,068,676.48**				
Acambaro.	$22,172,341.90	X		X	X
Celaya	$66,914,553.73	X			X
Guanajuato	$59,881,177.45	X	X	X	X
León	$47,490,092.37	X	X	X	
Salamanca	$10,967,533.36	X			
San Miguel de Allende	$16,642,977.67	X	X		X
Jalisco	**$148,577,484.55**				
Guadalajara	$81,177,870.90	X			
Puerto Vallarta	$67,399,613.65	X		X	X
Nayarit	**$14,715,312.83**				
Bahía de Banderas	$14,715,312.83	X		X	
Tamaulipas	**$13,220,320.30**				
CD. Victoria	$13,220,320.30		X		
Veracruz	**$13,522,149.93**				
Coatzacoalcos	$2,442,529.32	X			
Xalapa	$11,079,620.61		X		
Yucatán	**$19,718,876.78**				
Merida	$19,718,876.78	X		X	
Grand Total	**$757,985,953.10**	**18 (a)**	**6 (b)**	**12**	**8**

Notes:

(a) Some utilities meet the indicator in more than one year. A total of 18 different utilities meet the indicator one or more times for a total of 25, as reported in the results framework.

(b) One utility met the indicator in more than one year. A total of 6 different utilities met the indicator one or more times for a total of 7, as reported in the results framework.

Annex 3: Economic and Financial Analysis

1. The objective of the Project was to improve the efficiency of participating water utilities through the provision of technical assistance and financing. To achieve this objective, the Project included two components: (i) strengthen water supply and sanitation institutions; and (ii) modernization of the services of participating utilities, implementing technical assistance, and classical efficiency investment (physical, energy, and commercial efficiency improvements).[21]

2. Four indicators were chosen to monitor the compliance of the objective: (i) increase of collected revenues; (ii) reduction of energy consumption; (iii) commercial efficiency improvement; and (iv) global efficiency increase. The targets were defined in terms of number of utilities complying the goal. Actual outcomes show that the target was exceeded in one of the indicators, while the achievement for the other three varied from 40 percent to 88 percent (Table A3.1).

Table A3.1: Expected and Actual Outputs

Indicator	Expected Outcomes	Actual Outcomes	Percent of Target Met
# of water utilities whose collected revenues per cubic meter produced increased by 5 percent	30	25	83%
# of water utilities whose energy consumption in kwh per cubic meter produced decreases by 5 percent	8	7	88%
# of water utilities showing commercial efficiency improvement of 5 percent or more	30	12	40%
# of utilities whose global efficiency increased by 2 percent	5	8	160%

3. During preparation, a financial evaluation was conducted, using three utilities where works were implemented under another project, PATME of similar characteristics to PROME. The benefits included in the evaluation consisted of increasing collected revenues and reduction in operating costs, both resulting from decreased water losses. Cost and benefits were discounted using a 9 percent rate and 25-year lifetime period. Other assumptions used were: energy cost of US$0.02 per cubic meter; and US$0.36 per cubic meter as the financial cost of transporting water. CONAGUA estimated at the time at appraisal that the real transportation cost was US$1.18 per cubic meter, when subsidies given to operators were eliminated.

4. Results of the evaluation at the time of appraisal showed that if unaccounted for water was reduced by between 3.5 percent and 7.5 percent during the implementation period, expected returns would range between 19 percent and 35 percent (Table A3.2).

Table A3.2: Expected Results at Appraisal from the Financial Evaluation

Utility	# of Connections	Expected Reduction of UFW	NPV (Million US$)	IRR
Naucalpan	143,309	3.5%	33.44	35.9%
Gomez Palacio	78,248	7.5%	6.20	19.4%
Durango	136,949	5.0%	15.75	23.1%

[21] At the time of appraisal, another intervention, *Pilot Output-Based Efficiency Investment* was included under Component 2; yet it was dropped at the time of restructuring.

Methodology used for the ICR

5. The evaluation for this ICR went beyond the one used at appraisal as the analysis was conducted from financial and economic perspectives. For both, cost-benefit analysis was used comparing two scenarios: *with* and *without* the project. The evaluation was based on actual achievements and actual costs of works and activities implemented under the Project. Actual achievements and real costs were compared to those foreseen at appraisal. Flow of actual benefits and costs were transformed to 2010 prices to make them comparable to those expected. The same discount rate of 9 percent and lifetime period of 25-years were used for all investments except for micro-meters, for which a 10-year period was used. The analysis was complemented analyzing results under different scenarios of discount rates, including the discount rate of 9 percent used at appraisal [22] as well as 10 percent discount rate used for Mexico in projects using public funds.

6. The net benefit was estimated as the incremental benefit of two scenarios: *with* and *without* interventions. For the *with* interventions scenario, actual costs and actual benefits were projected per specific activities and their associated achievements. For the without interventions, costs and benefits were projected as business as usual scenario, and so the existing situation at preparation prevailed. All interventions aimed to improve efficiency and so economic benefits were measured as the savings of operating economic costs when physical losses were reduced or energy-usage improved; consumer benefits when water supply improved and/or rationing decreased; and financial benefits were measured as savings of operating financial costs and increased in revenues.

7. There are some caveats associated with the evaluation. First, the sample of four utilities included on the analyses are those with better information, with in turn generally perform better. Thus, the results may be skewed towards well-performing utilities. Second, many of the activities supported by the Project were part of larger packages of financial support provided by federal and state programs. Thus, benefits from efficiency improvements cannot be attributed solely to PROME, but to a mix of federal programs. For two of the utilities included in the sample, Ciudad de Mexico and San Luis Potosi, information of efficiency investment from all programs was detailed and was included in the evaluation. However, for the other two utilities in the sample, Guanajuato and Puerto Vallarta, only information of efficiency investment from PROME and APAZU was available, though not the same from other federal programs. For these two utilities the analysis assumes that investments from all programs were three times as much as the investments under PROME and APAZU, which is a conservative assumption. Therefore, it is possible that the corresponding results are skewed. Third, neither the design nor the implementation of the Project made provisions for measurement tools of benefits attributed to specific interventions, As a consequence, there was little information related to benefits associated to activities from the Project. Lastly, available information to measure economic benefits was not sufficient to make a comprehensive economic evaluation. Economic costs were based on financial costs, and important benefits such as, impact on environment, through the security of water supply, or impact on health due to better water quality, were not measured.

8. There were three other Federal programs, besides PROME, that were implemented by CONAGUA in the water sector in urban areas at the same time: APAZU, PROMAGUA and

[22] The 9 percent discount rate used at appraisal is higher than the 6 percent established in the new guidelines of the World Bank (2016). Discounting Costs and Benefits in Economic Analysis of World Bank Projects.

PRODDER.[23] All of them funded interventions not only in efficiency improvement but also in other works to improve the water, sewerage and sanitation sectors. The works included expansion, quality improvement, treatment plants, etc. Except for APAZU, it is unknown how much of these investments were used exclusively for efficiency improvement. Records from CONAGUA indicate that 5 percent of APAZU's funds (MXP 891 million) were dedicated to efficiency; however, the amount used in efficiency from PROMAGUA or PRODDER's funds was not known with precision. (Table A.3.3).

Table A3.3. Total Investment in Federal Programs (Federal, State, and Municipal Funds are included)

Program	TOTAL (Million MXP)				EFFICIENCY IMPROVEMENT	
	2,013	2,014	TOTAL	%	Million MXP	%
PROME	365	907	1,272	4.2%	1,272	100%
APAZU	8,857	8,869	17,725	59.0%	891	5%
PROMAGUA	4,515	39	4,554	15.2%	N/A	N/A
PRODDER	3,872	2,621	6,493	21.6%	N/A	N/A
TOTAL	17,609	12,436	30,044	100.0%	N/A	N/A

9. For this evaluation four operators were selected based on availability of information of efficiency investment and attributed benefits. Selected operators in the following cities were chosen: Ciudad de Guanajuato, Puerto Vallarta, Ciudad de Mexico, and San Luis Potosi. For Ciudad de Mexico, the information of investment and associated benefits was very specific; for San Luis Potosi, information of investment in efficiency from all programs were known and also associated benefits; and for Ciudad de Guanajuato and Puerto Vallarta, the information on investment under PROME and APAZU, was very detailed, although information from other programs was not known. This evaluation assumed for these two cities that investment on efficiency from all the programs were three times as much the investment under PROME, which is a conservative assumption.

Costs

10. Investment costs corresponded to efficiency improvement interventions from all programs. They were transformed to 2010 prices to make them comparable with that foreseen at appraisal. The transformation was made for total investment costs, and for each individual investment evaluated.

11. To make the transformation to 2010 prices, the cost of the activities was broken down per currency and date of occurrence. This is important as the Mexican currency fluctuated widely during the implementation period due to exchange rate variations and inflation. Fluctuation of both exchange rate and the CPI impacted the Project in different ways: (i) Depreciation of the Mexican peso to US dollar helped the Project as more Mexican pesos were received from the amount of loan disbursed in USD; while appreciation of the Mexican pesos would have done the contrary, it would have been disadvantageous for the Project as less Mexican pesos would be received per amount of US dollars disbursed;[24] and (ii) Inflation pushed costs higher,

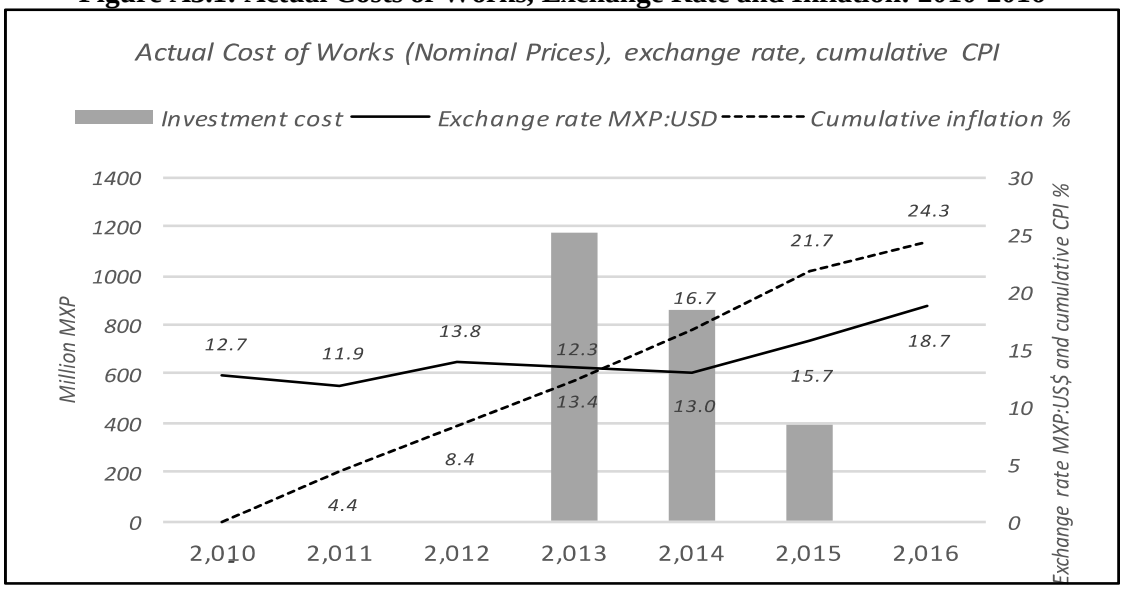
[23] APAZU: Programa de Agua Potable, Alcantarillado y Saneamiento en zonas urbanas; PROMAGUA: Programa para la Modernización de los Organismos Operadores de Agua, alcantarillado, y saneamiento; PRODDER: Programa de Devolución de Derechos.

[24] This evaluation did not measure the impact of exchange rate fluctuation in the future payments to serve the debt.

negatively affecting the Project. Disbursements from the loan were transformed to 2010 Mexican prices using the exchange rate at time of disbursement. Counterpart funds were transformed to 2010 Mexican pesos using the CPI index from the time of appraisal to the date when funds were used. The net impact of currency fluctuations on the loan was estimated comparing total disbursements received against the resulting if no fluctuation had occurred.

12. From the time of appraisal in 2010 to the end of the implementation period in 2016, the exchange rate went from MXP 12.68: USD 1.00 to MXP 18.69: USD 1.00, that is, the Mexican peso lost 47 percent of its value against the US dollar. The inflation rate was 24 percent in the same period. Each disbursement and payment was affected differently depending on the time of occurrence. During the period the average depreciation was 18 percent and inflation 8 percent (Figure A3.1).

Figure A3.1: Actual Costs of Works, Exchange Rate and Inflation: 2010-2016



Total Cost of the Project

13. Total investment cost accounts for US$162 million comprising actual disbursement of US$100 million, and counterpart funds of US$62 million, which corresponded to investments in efficiency implemented under the APAZU program. Investment costs expressed in nominal prices were MXP2,432 million; while in 2010 real prices were 10 percent lower, equal to MXP2,200 million (Table A3.4).

Table A3.4: Impact of Currency Fluctuation on the Cost of the Project

Item	Investment Cost (Million)		Exchange Rate	Difference (%)
	US$	MXP	MXP:USD	
Actual Investment cost (Nominal price)				
PROME Funds	100 (a)	1,580		
Counterpart Funds (APAZU)	62	852		
Total	162	2,432	15.01	
Exchange rate at appraisal			12.68	+18%
Actual Investment cost (2010 prices)		2,200		-10%
Decrease of value due to inflation				-8%

Note: (a) It does not include Front-end-fee.

Costs of Interventions Implemented by the Operators Included in this Evaluation

14. The cost of the efficiency interventions from PROME and APAZU included in this evaluation equal US$18.5 million expressed in 2010 prices. (Table A3.5).

Table A3.5: Investment Costs under PROME and APAZU

Operator	In million MXP Nominal prices	IN million MXP 2010 prices	In million US$ 2010 prices
Ciudad de Guanajuato	59.88	54.17	4.27
Puerto Vallarta	67.40	57.46	4.53
Ciudad de Mexico	100.12	84.34	6.65
San Luis Potosi	45.25	39.18	3.09
Total sample	272.65	235.14	18.54

15. These interventions represent all type of activities contemplated under PROME: efficiency in commercial, energy, and physical areas of the service (Table A3.6). For this evaluation, financial prices were transformed to economic prices by removing 16 percent of value-added tax.

Table A3.6: Composition of the Investment under PROME and APAZU (In million MXP – nominal prices)

Operator	Commercial	Energy	Physical	TA	Total
Ciudad Guanajuato	2.65	10.35	45.00	1.89	59.88
Puerto Vallarta	19.43	1.69	46.27	-	67.40
Ciudad de Mexico	100.12	-	-	-	100.12
San Luis Potosi	19.63	25.61	-	-	45.25
Total sample	141.84	37.66	91.27	1.89	272.65

16. For this evaluation, the investment cost was added by the cost of efficiency interventions of other programs. Given that in Guanajuato and Puerto Vallarta the additional cost was unknown, it was assumed that total cost on efficiency under all the programs was three times as much as under PROME - about MXP 180 million for Guanajuato, and MXP 200 million for Puerto Vallarta.

Benefits

17. The benefits were measured based on achievement obtained in the four PDO indicators, that is: (i) increase of collected revenues; (ii) reduction of energy consumption; (iii) commercial efficiency improvement; and (iv) increase in global efficiency. The achievements were attained for different stakeholders: operators, customers, and society. From the operators' perspective, benefits were measured as: (i) increase of revenue collection; and (ii) savings of operating costs (due to more efficient energy usage and improvement of production and distribution systems). From the customers' perspective benefits were attained when the quality of water service provided improved. Some of the customers had a reduction in the intermittence of supply, given the improvement of production, distribution system, as well as commercial efficiency. From the society's perspective, more efficient water and energy usage was important as resources are scarce and some areas suffer from water stress.

18. From the operator's perspective, benefits were estimated based on information provided by the operators regarding production, operating costs, and billing database. From the customers' perspective, no information was available about the economic costs that intermittence caused, and so tariffs were used as an approximation of willingness to pay for better service. From the society's perspective, no information of the economic cost of the resources was available and so the financial cost of producing and distributing the water was used as a proxy.

Guanajuato

19. SIMAPAG is the utility responsible for providing water and sanitation services in the city in Guanajuato in the State of Guanajuato. It serves about 95 percent of its 140,000 inhabitants. Sixty percent of the water used for distribution is groundwater and 40 percent surface water.

20. Before the interventions, there were some issues that needed attention, such as: (i) the reading used for billing was not accurate - although 97 percent of customers were metered, 60 percent of the meters needed replacement as they had surpassed their lifetime; (ii) the expenditure of energy was high due to obsolete electromechanical equipment used for pumping groundwater, and insufficient storage capacity to allow managing energy during off-peak period; (iii) high water losses due to lack of sectorization and network in need of rehabilitation; (iv) the south area of the city of about 27,500 inhabitants was poorly served (the main pipe that conveyed the water was in deplorable condition and storage was insufficient for the area); and (v) the distribution system in the downtown area of about 30,000 inhabitants was isolated and needed to be linked to the general system. The only source of water available for this area was surface water, which became insufficient during the dry season (October to May), forcing residents to ration water supplies.

21. The interventions consisted of: replacement of 6,900 meters; replacement of electromechanical equipment used for pumping; macro-meters on regulation tanks; equipment to improve pressure in the distribution network; rehabilitation of the main line used to convey water to the south area of Guanajuato; and replacement of two main pipes to improve water distribution in the downtown area. The cost of the investment was about MXP 60 million, or US$4 million in 2010 prices (Table A3.7).

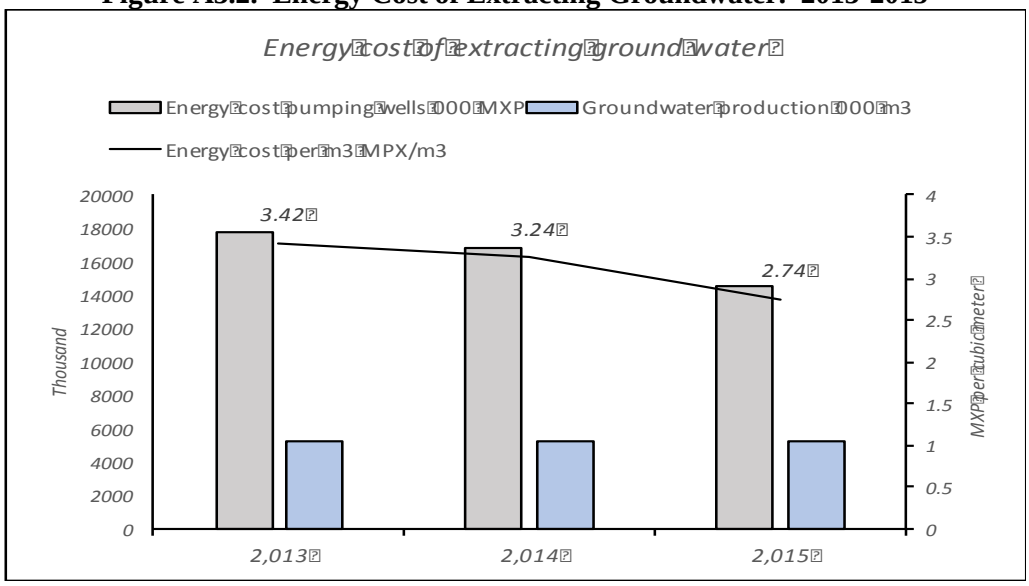
Table A3.7: Cost of Interventions in Guanajuato under PROME

Type of investment	Million MXP Nominal prices	Million MXP 2010 Prices	Million USD 2010 prices
Commercial	2.65	2.40	0.19
Energy	10.35	9.36	0.74
Physical	45.00	40.71	3.21
Technical Assistance	1.89	1.71	0.13
Total	59.88	54.17	4.27

22. As explained before, to include investment from other programs, this evaluation assumed that investment cost of efficiency improvement from all programs was three times as much as the investments under PROME -about MXP 180 million.

23. The interventions brought important savings in operating costs due to a reduction of about 20 percent of energy cost from extracting groundwater and better management of regulation tanks; and 3 percent reduction of water production per person per day (see Figure A3.2). Additional benefits derived from the interconnection of the water system near the downtown area, which improved the water supply service to 30,000 residents. SIMAPAG estimated that rationing varied from 10 percent to 30 percent during 7 months of dry season, depending on the intensity of the drought.

Figure A3.2. Energy Cost of Extracting Groundwater. 2013-2015



24. SIMAPAG increased the physical efficiency by one point, and so the water losses reduced at the same pace (Table A3.8). The replacement of meters allowed maintaining the readings and impeded incurrences. Volume billed per person per day remained the same as shown by SIMAPAG's billing records. Commercial efficiency remained. Global efficiency improved by one point.

Table A3.8: Efficiency Indicators SIMAPAG-Guanajuato

Indicator	2013	2014	2015
Production per person per day (lpd)	170	165	165
Billed volume per person per day (lpd)	111	111	111
Commercial efficiency	95%	95%	95%
Physical efficiency	66%	67%	67%
Water losses	62%	64%	64%
Unaccounted for Water	34%	33%	33%

25. The flow of costs was projected for the *without* and *with* project scenarios using financial figures from SIMAPAG. For the *without* project scenario, 2013 figures were used. For the *with* project scenario, a reduction of MXP 1.8 per cubic meter was included as actual figures from 2014 and 2015 show.

26. Financial benefits were estimated as savings of operating costs. Economic benefits were estimated as savings of operating costs plus elimination of rationing in the downtown area. Savings of operating costs were estimated from financial figures of the utility. Elimination of rationing was estimated as the 20 percent increase of consumption during the dry season, multiplied by current tariffs (transformed to 2010 prices). The information was obtained from the billing database.

27. Results show that present value of net financial benefits of efficiency improvement are US$ 2.9 million and returns of 12 percent. Economic results show net benefits of US$ 3.9 and 13 percent return. (Table A3.9).

Table A3. 9: Results of the Evaluation Guanajuato

Analysis	Present Value of Flows (Thousand US$)			IRR
	Costs	Benefits	Net Benefit	
Financial	13,759	16,697	2,937	12%
Economic	11,862	15,757	3,895	13%

28. In both cases the returns are higher than the 9 percent used as discount rate, as well as the 10 percent rate used by the Government of Mexico, or 6 percent recommended in the new World Bank guidelines.

Puerto Vallarta

29. The water system in Puerto Vallarta is provided by SEAPAL. An estimated 72.5 percent of the water produced is extracted from wells, while 27.5 percent comes from surface sources. Ninety-eight percent of customers were metered and the service was provided with good quality and quantity. However, there were efficiencies to be gained in the system, especially with regard to operating the wells, using energy, and distributing the water.

30. The investments financed under PROME consisted of the installation of 13,150 micro-meters (commercial); rehabilitation of telemetry stations (energy efficiency); and rehabilitation of main pipes, interconnection of the distribution system in some areas of the city; rehabilitation of wells, and installation of macro meters. The investment cost was MXP67.4 million, which

corresponded to about US$4.5 million in 2010 prices. Economic costs were estimated without taxes (Table A3.10).

Table A3.10: Cost of Interventions in Puerto Vallarta under PROME

Type of investment	Million MXP Nominal prices	Million MXP 2010 Prices	Million USD 2010 prices
Commercial	19,433	16,745	1,321
Energy	1,695	1,392	110
Physical	46,271	39,317	3,101
Total	67,400	57,455	4,531

31. The main benefits from the interventions were derived from commercial and operational efficiency improvements. Revenue Collection improved from 97 percent to 100 percent and operational costs reduced by 5 percent (in real 2010 prices). This translated into an increase in revenues and savings on operating costs. The impact of these two benefits were positive, despite the fact that physical efficiency decreased by 2 points, production per capita increased by 0.4 percent, and volume billed decreased by 1.5 percent (Table A3.11).

32. Savings in operating costs are explained by: (i) reduction in the number of pipes repaired, (ii) reduction of energy costs for extracting groundwater; and (iii) improvement of operations given a more integrated system and better sectorization of the distribution network.

33. From the customers' point of view, the interventions did not bring any additional benefit. Before PROME, the service was provided with good quality and quantity and so they did not have to cope with additional costs other than charges from the water service. Consequently, this evaluation did not include any benefit for the customers; instead only benefits related to reduced water production and operating cost were included. Given that no information was available for economic cost of water in the area, the financial cost was used without taxes (Table A3.12).

Table A3.11: Indicators SEAPAL (Puerto Vallarta) during the implementation of PROME

Indicator	2013	2014	2015
Production per person per day	266	263	267
Volume billed per person per day	194	191	191
Commercial efficiency	97%	97%	100%
Physical efficiency	73%	73%	71%
Global efficiency	70%	70%	71%
Unaccounted for Water	27%	27%	29%
Production cost per cubic meter (2010 prices)	9.057	9.46	8.63
Collected revenue per cubic meter (2010 prices)	8.56	8.71	8.73

34. Results show net financial benefits of US$2.8 million and return of 11.5 percent. From an economic point of view, results show returns of 9 percent, same as the discount rate used.

Table A3.12: Results of the Evaluation SEAPAL (Puerto Vallarta)

Analysis	Present Value of Flows (Thousand US$)			IRR
	Costs	Benefits	Net Benefit	
Financial results	12,381	15,179	2,798	11.5%
Economic results	10,673	10,757	84	9.1%

Distrito Federal

35. The investment under PROME consisted of the installation of about 70,000 micrometers; and the rehabilitation of 74 pieces of pumping equipment to make the operation of wells more efficient. Both with a cost of US$8 million expressed in 2010 prices (Table A3.13).

Table A3.13: Cost of Interventions in the Distrito Federal under PROME

Type of investment	Million MXP Nominal prices	Million MXP 2010 Prices	Million USD 2010 prices
Commercial (micro-meters)	100.12	84.34	6.65
Energy	22.20	19.02	1.50
Total	122.33	103.36	8.15

36. This evaluation concentrated on commercial activities, given that information regarding the associated impact was available. While there were also activities carried out to improve energy efficiency, these were not evaluated due to a lack of information required to measure the impact on specific wells from rehabilitation of the specific equipment.

37. The benefits were measured as the increase of revenue generated from metered versus non-metered consumption. The source of information was the billing data from SACMEX which shows that metered volume billed for domestic customers is about 20 percent higher than that estimated for non-metered customers. The average tariff per cubic meter is also higher for metered customers (Table A3.14). Economic benefits were estimated the same way under the assumption that customers prefer their consumption metered so as to control their bills. This assumption is taken from the positive response of households when meters are installed.

38. No additional economic benefits were included given that households will not experience any change in the service, as they reside in areas with continuous supply and good water quality. Only areas with good service are appropriate for micro-metering.

Table A3.14: Volume and Tariff Charges for Metered and Non-metered Customers

Domestic Customers	Volume billed (m3)/ connection/ month	Average Tariff 2010 MXP/m^3
Metered	12	6.59
Non-metered	10	4.44

39. The evaluation used a 10 year lifetime period for the meters. Costs corresponded to the investment cost of the meters plus one percent for maintenance costs. For the economic evaluation, taxes were removed.

40. Results show returns higher that the 9 percent discount rate used for the evaluation and higher than the 6 percent used in the new guidelines of the World Bank, as well as the 10 percent used for public investments in Mexico (Table A3.15).

Table A3.15: Results of the Evaluation Ciudad de Mexico

Analysis	Present Value of Flows (Thousand US$)			IRR
	Costs	Benefits	Net Benefit	
Financial results	6,841	9,727	2,886	16.7%
Economic results	5,897	9,727	3,830	20.3%

San Luis Potosi

41. The water service in the metropolitan area of San Luis Potosi is provided by INTERAPAS. Most of the water is extracted from wells. There are some dams from surface water, however, variability caused by climate change is making water availability more uncertain. By the end of 2012 and first semester of 2013, rain precipitation was the lowest in the history of San Luis Potosi, and the dams were under 13 percent of their capacity. At the time of Project appraisal, the service area was confronted with inadequate water services in a context of scarcity, inefficient management, and a general lack of planning. Water losses were estimated as high as 50 percent. Strategies under PROME included improving the efficiency of wells, and reducing water leakages. Although coverage was 97 percent, there were areas where intermittence of the service was as high as 12 hours per day.

42. The investments implemented under PROME consisted of commercial activities and interventions to improve energy usage and efficiency in well operations. The commercial activities consisted of installation of 6,500 micro-meters (Table A3.16).

Table A3.16: Cost of Interventions in San Luis Potosi under PROME

Type of investment	Million MXP Nominal prices	Million MXP 2010 Prices	Million USD 2010 prices
Commercial (micro-meters)	19.63	16.85	1.33
Energy	25.61	22.32	1.76
Total	45.25	39.18	3.09

43. There were additional investments of MXP47 million from other programs such as APAZU and PRODDER, however, they targeted infrastructure projects and not efficiency activities. Therefore, they were not included in this evaluation.

44. During the implementation of PROME, INTERAPAS did not improve either its commercial efficiency or physical efficiency. Instead, they deteriorated by 1 and 2 points, respectively. Unaccounted for water increased from 50 percent to 51 percent of volume produced. Volume billed per person decreased by 4 percent, which can be explained by the installation of micro-meters (Table A3.17).

Table A3.17: Indicators INTERAPAS (San Luis Potosi) during implementation of PROME

Indicator	2012	2013	2014
Production per person per day	255	255	254
Volume billed per person per day	N/A	126	121
Commercial efficiency	N/A	94%	93%
Physical efficiency	N/A	50%	48%
Global efficiency	N/A	47%	44%
Unaccounted for Water	N/A	50%	52%
Production cost per cubic meter (2010 prices)	3.96	3.74	3.91

45. Despite weakening efficiency, INTERAPAS did achieve improvement in the production and distribution system that reduced its operating costs. The major efficiencies were obtained at the wells level, improving production and energy usage. The pumps are now being operated mostly during off-peak periods, which reduces energy costs. The unit cost of production, expressed in 2010 prices, was reduced by 6 percent in the first year and then by 1.3 percent.

46. Financial benefits were measured as: a) change of revenue from metered consumers; and b) savings of operating costs. The variation of revenues became negative as the volume billed decreased when meters were installed for 6,500 households. Savings in operating costs were estimated as the reduction of operating costs from the *with* and *without* project scenarios.

47. Economic benefits were important. The increase of production from wells and reduction of volume consumed per person alleviated water stress and reduced intermittence. Beneficiaries enjoyed better supply and quality of the water service. Unfortunately, there was no information to measure improvement of the service and customer surplus. As a proxy, this evaluation measured the benefit as: (i) increase of consumption in rationing areas (from released water from metered water); and (ii) reduction of production costs, which were the same as financial costs without value-added-tax. Results show that benefits were twice as high as costs, and returns higher than 29 percent (Table A3.18)

Table A3.18: Results of the Evaluation San Luis Potosi

Analysis	Present Value of Flows (Thousand US$)			IRR
	Costs	Benefits	Net Benefit	
Financial results	2,905	6,247	3,342	29.7%
Economic results	2,504	5,713	3,209	32.9%

Summary of Results

48. Results of the financial evaluation show net benefits of about US$ 12 million, and average return of 13 percent for all operators included in the sample (Table A3.19)

Table A3.19: Results of the Financial Evaluation

Utility	Present Value of Flows (Thousand US$)			IRR
	Costs	Benefits	Net Benefit	
Guanajuato	13,759	16,697	2,937	11.6%
Puerto Vallarta	12,381	15,179	2,798	11.5%
Ciudad de Mexico	6,841	9,727	2,886	16.7%
San Luis Potosi	2,905	6,247	3,342	29.7%
Total/Average	35,886	47,850	11,964	13.3%

49. Similar conclusions are drawn from the economic evaluation, as average return is about 14 percent and net benefit of US$ 11 million (Table A3.20).

Table A3.20: Results of the Economic Evaluation

Utility	Present Value of Flows (Thousand US$)			IRR
	Costs	Benefits	Net Benefit	
Guanajuato	11,862	15,757	3,895	12.8%
Puerto Vallarta	10,673	10,757	84	9.1%
Ciudad de Mexico	5,897	9,727	3,830	20.3%
San Luis Potosi	2,504	5,713	3,209	32.9%
Total/Average	30,936	41,954	11,018	13.7%

50. In all cases the returns are higher than the discount rate of 9 percent used for the evaluation. It is important to note that the analysis does not include an assessment of benefits to lower performing utilities, given the lack of data for such utilities.

Expected vs Actual Results

51. Financial results show that even though actual returns were lower than expected for some of the operators, the investment was worthwhile as returns are higher than the 9 percent discount rate in all the cases (Table A3.21).

Table A3.21: Expected and Actual Financial Results

Expected Results			Actual Results		
Utility	NPV (US$ million)	IRR	Utility	NPV (US$ million)	IRR
Naucalpan	33.44	35.9%	Guanajuato	2.94	11.6%
Gomez Palacio	6.20	19.4%	Puerto Vallarta	2.80	11.5%
Durango	15.75	23.1%	Ciudad de Mexico	2.89	16.7%
			San Luis Potosi	3.34	29.7%

52. The lower results are explained mainly in the assumption of water losses reduction. During appraisal, water losses were expected to reduce in a range between 3.5 percent and 7 percent. However, actual results show that water losses reduced by 2 percent in average.

Annex 4: Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Alessandra Campanaro	Senior Urban Specialist	GSU08	
Arturo Jimenez Ramon	Consultant	n.a.	Economist
Cintia Silvia Vega	Junior Professional Associate	n.a.	
David Michaud	Practice Manager	GWA03	
Diego Juan Rodriguez	Senior Water Resource Management Specialist	GWA04	
Dmitri Gourfinkel	Senior Financial Management Specialist	GGO22	
Jose Luis Calderon Bartheneuf	Consultant	GEN04	Environmental Specialist
Jose C. Janeiro	Senior Finance Officer	WFALA	
Jose M. Martinez	Consultant	GGO04	Procurement
Juan Carlos Serrano-Machorro	Senior Financial Management Specialist	GGO22	
Luis Alberto Poggi	Consultant		
Luis Tineo	Lead Operations Officer	GFDRR	
Luis Ernesto Vega Chacon	Consultant	n.a.	
Maria Carolina Mantaras	Assistant Project Manager	GSDTI	
Mariana Margarita Montiel	Senior Counsel	LEGAM	
Oscar A. Melo	Consultant	n.a.	
Rosa Elena Bellido	Language Program Assistant	GSURR	
Xiomara Morel	Lead Financial Management Specialist	GGO22	
Supervision/ICR			
Alessandra Campanaro	Senior Urban Specialist	GSU08	
Alexandra Ortiz	Program Leader	LCC1C	
Amanda Joan Goksu	Consultant	GWAGP	ICR Author
Blanca Lopez Alascio Granero	Consultant	GWA04	Water Analyst
Carlos Ignacio Aguilar Delfin	Water Supply and Sanitation Specialist	n.a.	
Charles Delfieux	Senior Water Supply and Sanitation Specialist	GWA04	Task Team Leader (Jan. 2016 – June 2016)
Cintia Silvia Vega	Junior Professional Associate	n.a.	
Daniel Chalupowicz	Financial Management Specialist	GGO22	
Daniel Nolasco	Consultant	GWA04	
David Michaud	Practice Manager	GWA03	Task Team Leader (2010 – Nov. 2012)

Diego Juan Rodriguez	Senior Water Resource Management Specialist	GWA04	
Dmitri Gourfinkel	Senior Financial Management Specialist	GGO22	
Elvira Broeks Motta	Program Analyst	GWA03	
Fabio Garzon Contreras	Consultant	GWA09	
Gabriel Penaloza	Senior Procurement Specialist	GGO04	
Guillermo Yepes	Consultant	n.a.	
Gustavo Saltiel	Lead Water and Sanitation Specialist	GWA04	
Jose Luis Calderon Bartheneuf	Consultant	GEN04	Environmental Specialist
Joseph Siagian	Information Analyst	SECPO	
Lucia Fandino	Consultant	GWA04	Water Engineer
Luis Alberto Poggi	Consultant	n.a.	
Luis Tineo	Lead Operations Officer	GFDRR	
Luis Ernesto Vega Chacon	Consultant	n.a.	
Luz Maria Gonzalez	Consultant	n.a.	Economist and Financial Specialist
Maria Luci Giraldo	Consultant		
Maria Guadalupe Toscano	Public Sector Management Specialist	n.a.	
Maria Poli	Consultant	GGOOS	
Martin P. Gambrill	Lead Water and Sanitation Specialist	GWA04	Task Team Leader (Nov. 2012-Jan. 2016)
Martin Henri Lenihan	Senior Social Development Specialist	GSU02	
Renan Alberto Poveda	Senior Environmental Specialist	GEN04	
Ricardo Sandoval	Consultant	n.a.	
Silvia Moran-Porche	Procurement Specialist		
Victoria Flamant	Consultant	n.a.	
Victor Vazquez Alvarez	Senior Water and Sanitation Specialist	GWA04	
William D. Kingdom	Lead Water and Sanitation Specialist	GWADR	

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY10	17.83	116,005.81
FY11	11.11	41,375.59
Total:	28.94	157,381.40
Supervision/ICR		
FY11	10.41	72,759.73
FY12	26.03	123,791.03
FY13	21.00	111,057.97
FY14	31.41	164,516.08
FY15	28.89	184,278.53
FY16	17.30	143,051.15
FY17	4.00	32,410.00
Total:	139.04	831,864.49

Annex 5: Beneficiary Survey Results

1. The ICR team attempted to conduct formal interviews with a large sample of utilities during the October 2016 ICR mission. Due to high staff turnover rates among most utilities in Mexico, the ICR team was only able to meet with three utilities that employed staff knowledgeable of PROME interventions. General conclusions of the interviews are as follows:

Tlanlepantla, State of Mexico

Investments by Year and Type

Year/Action	Investment (In MXN)
2014	**$14,446,074.86**
Commercial	**$6,079,954.81**
Customer meter installations	$6,079,954.81
Physical	**$8,366,120.05**
Hydraulic system optimization	$2,196,120.00
Source and district-level meter installation	$6,170,000.05
2015	**$11,450,217.91**
Energy	**$11,450,217.91**
Electromechanical equipment replacement or refurbishment	$11,450,217.91
Grand Total	**$25,896,292.77**

2. The goal of the Tlanlepantla utility is to provide the best service possible, and to do so efficiently. The utility participated in PROME for two years and implemented actions toward all three types of improvements for a total investment of MXN 25.9 million (US$1.4 million). Access to PROME was critical for the improvements made on global efficiency, which increased between 2013 and 2014.

3. Replacement of customer meters with telemetry has reduced the labor costs for the utility with regard to checking and reporting consumption manually. The metering system in place today, which also includes source and district-level metering, is modern and streamlined, enabling the utility to control volume remotely. Investments in electromechanical equipment have reduced energy costs significantly.

4. More resources are now available to strengthen other weaker performing parts of the utility, such as leakage reduction. The utility is now looking to finish a cadaster of the network followed by sectorization to enable better leakage repair, all made possible by having an updated and more accurate metering system. The utility also expects to reduce the number of illegal connections in the future given the improvements in metering.

5. The benefits of PROME included an easy approval process and straightforward tender and procurement regulations. They also received the necessary support from CONAGUA to ensure fluid and fast implementation.

6. Management indicated that Bank funds could be better leveraged to bring in global best practices, especially with regard to leakage repair, and to advise on improved policies that would include more autonomy of the utilities to offer merit-based salaries, hire qualified personnel, and help address the non-payment of tariffs by government entities.

Puerto Vallarta, Jalisco

Investments by Year and Type

Year/Action	Investment (In MXN)
2013	**$19,101,363.71**
Commercial	**$7,450,263.32**
Customer meter installations	$7,450,263.32
Physical	**$11,651,100.39**
Component 2A. Technical assistance	$1,200,000.00
DMA	$2,043,122.05
Rehabilitation of network infrastructure	$6,213,475.98
Source and district-level meter installation	$2,194,502.36
2014	**$21,626,048.82**
Commercial	**$7,495,951.49**
Customer meter installations	$7,495,951.49
Physical	**$14,130,097.33**
DMA	$1,770,930.44
Improvement in water storage capacity	$2,743,824.19
Rehabilitation of network infrastructure	$8,958,192.93
Source and district-level meter installation	$657,149.77
2015	**$26,672,201.12**
Commercial	**$4,487,206.32**
Customer meter installations	$4,487,206.32
Energy	**$1,694,985.68**
Operation optimization	$1,694,985.68
Physical	**$20,490,009.12**
DMA	$1,116,119.50
Improvement in water sources	$4,619,736.62
Improvement in water storage capacity	$5,540,307.98
Rehabilitation of network infrastructure	$8,192,732.40
Source and district-level meter installation	$1,021,112.62
Grand Total	**$67,399,613.65**

7. SEAPAL is the utility providing services to customers in Puerto Vallarta. SEAPAL had participated in the PATME since 2006, and thus has 10 years of experience working with the Bank. It has made frequent, constant and continuous changes to its efficiency via PROME and other federal funds. In total, MXN 67 million (US$3.6 million) was invested in 2013 and 2015, mostly toward physical efficiency improvements, including the use of district metering areas to detect and control for leakages. Today, SEAPAL is one of the top performing utilities in Mexico, with a global efficiency rate of 71 percent compared to the national average of 48 percent.

8. Puerto Vallarta is unique in that it is one of a handful of utilities in Mexico with a high degree of autonomy. The utility benefits from a six (rather than three) year term for municipal positions, which is a state rule that greatly improves the sustainability of improvements and reforms due

to low staff turnover rates. The municipality also sets its own tariff, while most states in Mexico require state congressional approval, which politicizes the process.

9. The main objective of the SEAPAL is to maintain the current high level of service for the ever-expanding urban area. The utility first benefited under PATME from a 20-year study which set out the key investment plans needed to reach the set objectives. Under PROME and PATME, the utility has been able to reduce water production while serving a customer base that grew by 35 percent over the time period. This was mostly thanks to a steady control of leakage in the aging network paid for with PROME funds.

10. Benefits from PROME include access to critical funding to maintain service levels, and training received in 2013 for procurement processes, which was required given arduous Bank regulations. The utility expressed concern for the amount of time it took to deal with the no objection process. In the case of an objection there are several layers of approvals needed. Thus, a mistake or minor error takes at least a week to get all of the necessary approvals. SEAPAL does not require state signature on the agreement with CONAGUA Thus, while the interventions were approved early in the year, the delay for no-objections was perhaps more visible. Likewise, the utility mentioned that while under PATME payments went directly to the utility, under PROME the state was the intermediary. In the case where counterpart funds come from the utility itself, it was believed that the funds should also go to the utility to prevent any delays in processing.

11. The case of Puerto Vallarta shows how long-term participation in PROME can contribute to significant physical efficiency improvements, and how higher performing utilities can often make bigger changes given a higher capacity to execute more funds. While SEAPAL undoubtedly benefited from many other federal funds, the consistent application of PATME and PROME actions over a 10-year period demonstrates high Project benefits to the utility, even if attribution is not perfectly delineated.

Guanajuato, Guanajuato

12. Guanajuato invested MXN 59 million (US$3.2 million) in 2013 and 2014. During this time, water production fell while the number of users increased. The utility was able to improve metering in an area previously difficult to reach, and therefore make billing for those users much more accurate. The water saved is critical for ensuring reliable supply for an area that requires 70 percent of production water to come from groundwater sources. The replacement of electromechanical equipment reduced energy needed for pumping, which was further improved by macro-metering on regulation tanks which helped the utility stop using energy during peak energy hours.

13. Perhaps the biggest benefit of PROME was a sectorization study completed for the entire municipality. Investments based on this study are expected to increase physical efficiency by 10 percent, reduce unaccounted for water by one third, and save MXN 2.9 million in energy costs.

Investments by Year and Type

Year/Action	Investment (In MXN)
2013	**$41,854,078.91**
Commercial	**$2,648,326.40**
Customer meter installations	$2,648,326.40
Energy	**$3,538,542.13**
Electromechanical equipment replacement or refurbishment	$3,538,542.13
Physical	**$35,667,210.38**
Component 2A. Technical assistance	$1,885,000.00
DMA	$5,159,880.41
Hydraulic system optimization	$10,460,655.67
Pressure control	$2,486,681.46
Rehabilitation of network infrastructure	$14,630,755.16
Source and district-level meter installation	$1,044,237.68
2014	**$18,027,098.54**
Energy	**$6,808,450.03**
Electromechanical equipment replacement or refurbishment	$6,808,450.03
Physical	**$11,218,648.51**
DMA	$11,218,648.51
Grand Total	**$59,881,177.45**

14. The state was late in signing agreements with CONAGUA in most years. Thus, while actions had been prepared already in February, they couldn't start until September once decisions had been made. Some actions went forward but were paid for by the utility's own funds, and some were cancelled in 2015 due to lack of time to implement.

Annex 6: Summary of Borrower's ICR and/or Comments on Draft ICR

SUMMARY OF BORROWER ICR

A.1. Program Background

On July 14, 2011, the Comisión Nacional del Agua (National Water Commission) and the International Bank for Reconstruction and Development (IBRD) signed loan contract 7973-MX for US$100 million, to partially fund the Water Utilities Efficiency Improvement Project (PROME).

Since its creation, CONAGUA has executed a variety of programs in support of the potable water and sanitation subsector. To this end, it has received support from the multilateral financial institutions—mainly the World Bank (through the IBRD) and the Inter-American Development Bank (IDB), which have provided financial support in the form of loans for various projects in the subsector.

The immediate backdrop to PROME was the Modernization of the Water and Sanitation Sector Technical Assistance Project (Programa de Asistencia Técnica para el Mejoramiento de Eficiencia, PATME), the main objective of which was to provide a tool for improving the efficiency of water utilities by developing instruments to support local authorities in improving financial sustainability and efficiency in water supply and sanitation service provision.

PATME was partly financed through a US$25 million loan provided by the IBRD, which was completed in March 2010. Given satisfactory project results in terms of improving the efficiency of the water utilities—as well as the need for stricter supervision and more robust technical assistance that the project revealed—there was a need to intensify efforts to improve the water companies.

A.2. Project Design

PROME's main objective was to ***"improve the efficiency of participating water utilities through technical assistance and financing."***

It targeted utilities in urban communities with 20,000 inhabitants or more.

Four results indicators were established:

- Number of water utilities whose collected revenues in Mexican pesos per cubic meter produced increased by 5 percent in real terms;
- Number of water utilities whose energy consumption in kWh per cubic meter produced decreased by 5 percent;
- Number of water utilities showing a commercial efficiency improvement of 5 percent or more; and
- Average absolute increase in global efficiency in water utilities that participated in the project for at least 2 years.

A.3. Components, Changes, and Allocation of Funds by Category

The original components of the program were as follows:

Component 1: Water supply and sanitation sector information and knowledge management improvement. The estimated cost of this component was US$4.75 million, financed in full by the IBRD. The second intermediate results indicator under this component was redefined. These funds were never disbursed as it proved impossible to match IBRD procedures to CONAGUA's needs. Similarly, officials consulted that were responsible for program execution felt that the component was over designed, with very high costs allocated to it.

Funds from the Institutional Strengthening Unit (Gerencia de Fortalecimiento de los Organismos Operadores) were used to provide program management training courses for staff in CONAGUA's regional branches and river basin agencies, as well for the staff of the water utilities.

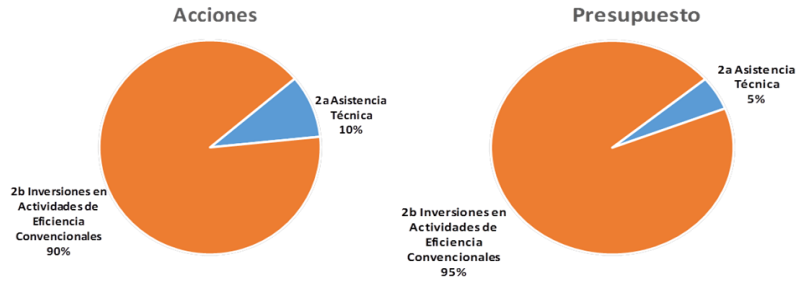
Events were also held to disseminate procedures for procurement with World Bank resources. These were delivered by the Bank, CONAGUA, and BANSEFI (Banco del Ahorro Nacional y Servicios Financieros)—the latter in its role as financial agent.

CONAGUA resources were also used to prepare the study "Assessment of the Water Utilities Efficiency Improvement Project (PROME) and Impact on Results of Participating Institutions in the 2010-13 Period, with a Proposal for Strengthening." This analyzed 142 actions implemented in 27 municipalities between 2010 and 2013.

Component 2: Modernization of the services of participating water utilities, with three subcomponents. It included three sub-components: 2a) Technical assistance; 2b) Classical efficiency investments; and 2c) Pilot output-based efficiency investments. At CONAGUA's request, subcomponent 2 was withdrawn in April 2014 and the funds reassigned to subcomponent 2b.

COMPONENT 2: MODERNIZATION OF WATER UTILITY SERVICES
Number of actions and budget (in pesos)

Componente	Número de Acciones	Presupuesto ($)
2a Asistencia Técnica	44	86,199,784
2b Inversiones en Actividades de Eficiencia Convencionales	418	1,595,471,160
Total general	**462**	**1,681,670,944**



Source: Author's calculations based on data provided by the GFOO, PROME Actions 2010-15

In 2015, CONAGUA also requested that funds be reallocated between subcomponents 2a and 2b, with the following outcome:

MONTO ORIGINAL DEL PRÉSTAMOS Y REASIGNACIONES

(US DÓLAR)

MONTO ORIGINAL DEL PRÉSTAMO				Situación final préstamo		
Categoría / Componente	Financiable	Contra-Parte	Total	Financiable	Contra-Parte	Total
(1) Bienes, capacitación, servicios de consultoría	4,750,000	0	4,750,000	0	0	0
(2) Bienes, obras, servicios de consultoría	92,000,000	60,000,000	152,000,000	99,750,000	62,000,000	161,750,000
2 (a) Subproyectos de asistencia técnica	5,000,000	2,000,000	7,000,000	8,000,700	2,000,000	10,000,700
2 (b) Subproyectos de eficiencia	87,000,000	58,000,000	145,000,000	91,749,300	60,000,000	151,749,300
(3) Subproyectos basados en resultados 2 (c)	3,000,000	2,000,000	5,000,000	0	0	0
(4) Comisión de apertura	250,000	0	250,000	250,000	0	250,000
TOTAL:	100,000,000	62,000,000	162,000,000	100,000,000	62,000,000	162,000,000

Source: CONAGUA, Financial Resources Department, Financial Resources Administration Division, Summary of PROME disbursements, electronic file

A.4. Implementation

Funds under loan 7973-MX were executed in full during the 2015 financial year. The actions financed thereunder were included in Component 2 (Modernization of the services of participating water utilities through technical assistance and financing), subcomponents 2a and 2b. No actions were financed under Component 1; however, although no actions were carried out using program funding, a number of studies and training workshops were conducted using local funds. Unfortunately, as this was current spending, Bank rules were not applied and disbursements could not therefore be made.

In April 2014, it was requested that the completion date be extended to June 30, 2016, and this request was authorized.

As of May 30, 2016, the loan had been disbursed in full, and the US$62 million in local counterpart funding (not financed with external credit) for PROME-eligible activities had been verified.

The official completion date for the loan was June 30, 2016.

A.5. Factors that Affected Implementation

Outside government or CONAGUA control

The change of government and subsequent administrative changes in CONAGUA management and the team administering the program.

The water utilities are entities in which political considerations prevail over technical and economic decisions, and they are influenced by factors and circumstances unrelated to their mission.

Their constitutionally mandated powers exceed their institutional strengths, and this affects their performance.

Within the Government's control

During the initial years of execution, the program lacked sufficient financial resources for implementation.

In general, the main factor affecting program execution concerned a lack of a precise definition of federal budget allocations and execution for these activities.

It is fair to say that there were few obstacles that negatively affected operation of the program during PROME execution.

Within CONAGUA's control

It should be noted that the CONAGUA department responsible for administering the program had only a minimal level of technical staffing for most of the implementation period. This meant that it was impossible to ensure adequate supervision of program compliance, as the financial and procurement aspects of the program absorbed practically all available staff time.

In general, utilities in major cities that implemented the program reported satisfactory results in terms of compliance. However, other utilities in smaller towns or involving more simple works experienced implementation difficulties, mainly owing to a lack of staff trained for this purpose.

A.6. Sustainability

Plans and programs in the potable water and sanitation subsector (which encompasses PROME) play a central role in CONAGUA policies.

Even with funding under the program concluded, the institution will continue to comply with program objectives, which are reflected in the PNH (National Water Program) for 2014-18, as well as in crosscutting plans such as the National Infrastructure Program 2014-18 (the objective of which is to "expand water infrastructure to ensure the supply of water for human consumption").[25]

Through CONAGUA, the federal government invests in programs such as

- The Program for Potable Water, Sewerage and Sanitation in Urban Areas (Programa de Agua Potable, Alcantarillado y Saneamiento en Zonas Urbanas, APAZU), which has been under implementation since 1990 with the objective of improving and expanding potable water services through financial and technical support for federal and municipal agencies and utilities. The program is now known as PROAGUA.

[25] National Water Commission, Status of the Potable Water, Drainage and Sanitation Subsector, Chapter 1, Investments in the Subsector, pg. 3.

- The Water Utilities Modernization Program (Programa para la Modernización de los Organismos Operadores de Agua, PROMAGUA), which has been in execution since 2001, to provide support for improving efficiencies and increasing the coverage and quality of services provided by potable water, sewerage and sanitation service providers in communities with more than 50,000 inhabitants (or those served by intermunicipal utilities).

- The Program to Devolve Water Rights (Programa de Devolución de Derechos de Agua, PRODDER), which began implementation in 2002 with the reallocation of funds collected from usage rights or the use of federal water, aimed at implementing actions to improve efficiency and infrastructure for potable water, sewerage and sanitation.

- Investments totaling Mex$34.2 million were made in 2014, of which 18.5 percent supported efficiency improvements.

- From the analysis and interviews with utilities participating in the program, it appears that actions conducted under PROME improved the utilities' service conditions and—consequently—those of final users.

- In order for the modernization actions undertaken to be successful, changes should be considered to provide the utilities with financial autonomy to set prices and rates.

A.7. Conclusions and Recommendations

From the information analyzed, it can be concluded that results were positive in terms of improving the efficiency of utilities.

However, the absence of a clear definition of how these results would be measured, using which data, means that they cannot be quantified exactly.

Given the absence of diagnostic assessments establishing the initial situation in the utilities in terms of efficiency, the starting point or baseline, the data are unreliable and do not facilitate the evaluation of investments and their impact.

The actions included under PROME are targeted, and cannot therefore be expected to increase the efficiency of the organization as a whole.

This situation means that mechanisms need to be designed (baseline data, forms of data gathering...etc.) that facilitate monitoring and the more precise measurement of the impact of resources under the program or other subsequent programs.

Most utilities (40 out of 90 municipalities, 44 percent) participated in the program for just one year, and conclusions cannot therefore be drawn regarding the increased efficiency established in the results indicators for the Project's development objective.

The participation of utilities in programs such as this one depends on numerous factors, including the availability of counterpart funds.

Actions implemented by the utilities do not appear to correspond to a medium or long-term plan. There is no planning, and in some cases the strategic plan was the last action completed (e.g. Bahía de Banderas, 2013).

An important conclusion is that no action among those established in the program's Operations and Procedures Manual (MOP) has an impact in isolation: complementary actions are required to secure sustained improvements in efficiency.

Loan implementation began in modest fashion, with the highest levels of investment taking place in 2014 and 2015. The loan contract was signed on June 14, 2011, and became effective on November 25 of the same year; as a result, no resources were programmed for that year, as they involved allocations to federal programs.

One of the main execution difficulties related to delays in authorizing investments. Procurement review procedures also need to be optimized by both the World Bank and CONAGUA/financial agent.

The impact of the Water Utilities Efficiency Improvement Project on participating utilities is positive, and the actions financed by the program are of great use to the water companies' operations.

Although the direct objective of PROME does not concern improvements in the quality of services provided by the water companies, the modernization of their operations gives rise to greater resource availability. Offering services in new areas will improve client services, with new options for payment and the submission of complaints.

Program execution took place under two governments. In parallel, there was a delay in the loan entering into effect, and this meant that the program was slow to get underway, with most investment in 2014 and 2015.

The design of indicators and components was suboptimal and lacked clear definition, hindering monitoring and evaluation.

Similarly, no mechanisms were envisaged for gathering the information necessary to calculate the indicators.

For this reason, the information gathered was insufficient or considered unreliable.

In the case of Component 1 (water supply and sanitation sector information and knowledge management improvement), the allocated budget exceeded the real chances of implementation, and was overdesigned in terms of both scope and budget.

Mechanisms need to be developed to simplify bidding processes, as delays in approving procurement meant that resources could not be used.

An alternative would be to consider multi-year projects that—despite beginning in the final quarter of the year—would not face pressure for completion within the fiscal year.

Consistent with the foregoing point, the possibility should be considered of implementing innovative financial mechanisms that accelerate the availability of resources to allow an early start to works.

COMMENTS ON DRAFT ICR DATED DECEMBER 24, 2016

Comments on Datasheet and pages 10 and 11 regarding ratings. (i) On the datasheet, it is suggested to change the rating from MU to S for both Overall Outcome (PDO) and Bank Performance; (ii) on page 17, it is suggested to rate Bank Performance as MS; (iii) on relevance of design and objectives (Page 10), a question was posed on how the rating is done; (iv) on page 11, regarding modest PDO rating, it is suggested to rate MS or S given that all Project funds were disbursed; and (v) it was suggested to change Borrower performance from MS to S.

A comment regarding the cancellation of Sub-component 2c (paragraphs 18, 25 and 76). The following change was proposed: From the start, CONAGUA did not accept the component on output-based disbursement, given that the national regulation did not allow it and the available time to implement it, but the Bank insisted to include it in the design.

A comment regarding the use of the APAZU budget line ítem for PROME, rather than SHCP creating a new PROME program (paragraph 25). About the creation of a new budget line, it was clarified that SHCP had restrictions to créate new lines rather than the lack of commitment.

A comment regarding the flow of Budget Funds (paragraph 28). Minor adjustments in the text were suggested.

A comment regarding the knowledge component (Component 1) and the IMTA evaluation (paragraph 32). A request was made to adjust the text.

A comment regarding M&E data collection and use (paragraph. 37). A request was made to adjust the text. It was also mentioned that every time the Bank requested information, the request was fulfilled, and all the available information at the time of the request was provided.

A comment regarding national information systems (paragraph 38). A request was made to adjust the text.

A comment regarding procurement (paragraph 44). During the project, different procurement Bank´s specialists participated, with different criteria, resulting in longer response time

A comment regarding attribution (paragraph 63). A request was made to remove the text regarding the downgrading of the PDO rating due to attribution concerns.
A comment regarding Bank performance on procurement (paragraph 86). It was suggested to include the Bank slow response to provide No Objections, and the Bank inflexibility in applying the procurement rules.

A comment regarding communicating the data challenges earlier on in the project (paragraph 90). A request was made to adjust the text.

Comments regarding the lessons learned: (i) no mechanisms were included for the collection of needed information to track performance indicators, as a result the information collected was not detailed enough; and (ii) allocation of resources to Component 1 was over estimated and unrealistic.

Annex 7: List of Supporting Documents

CONAGUA (Comisión Nacional del Agua) and IBRD (Banco Internacional de Reconstrucción y Fomento). 2015. *Manual de Operación y Procedimientos del Programa de Mejoramiento de Eficiencias de Organismos Operadores (PROME). PRÉSTAMO 7973-MX.*

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World Bank. Various Years (a). PROME Aide Memoires from July 2005 until June 2016.

World Bank. Various Years (b). PROME Implementation Status Reports (ISRs) from January 2011 until June 2016.

Map of Municipalities Participating in PROME