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Report No: 54875-MX

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF
US$100 MILLION EQUIVALENT

TO THE

UNITED MEXICAN STATES

FOR THE

WATER UTILITIES EFFICIENCY IMPROVEMENT PROJECT (PROME)

October 8, 2010

Sustainable Development Department
Mexico and Colombia Country Management Unit
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective July 15, 2010)

Currency Unit = Mexican Peso
MX$1.00 = US$ 0.07886

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

APAZU	*Programa de Agua Potable y Alcantarillado en Zonas Urbanas* (Drinking Water and Sewerage in Urban Areas Program)
BANSEFI	*Banco del Ahorro Nacional y Servicios Financieros, S.N.C.* (Bank of National Savings and Financial Services)
CAS	Country Assistance Strategy
CICC	*Comisión Intersecretarial de Cambio Climático* (Inter-Ministerial Commission on Climate Change)
CONAGUA	*Comisión Nacional del Agua* (National Water Commission)
COP	Conference of the Parties
CPS	Country Partnership Strategy
DA	Designated Account
DMA	District Metering Area
DPL	Development Policy Loan
EA	Environmental Assessment
FA	Financing Agreement
FBS	Fee-Based Services
FM	Financial Management
FMA	Financial Management Assessment
GDP	Gross Domestic Product
GOM	Government of Mexico
GRF	*Gerencia de Recursos Financieros* (Financial Resources Department)
HQ	Headquarters
IBRD	International Bank for Reconstruction and Development
ICR	Implementation Completion and Results Report
IDA	International Development Association
IFR	Interim Financial Reports
INAH	*Instituto Nacional de Antropologia e Historia* (National Institute for Anthropology and History)
IRR	Internal Rate of Return
ISR	Implementation Status and Results Report
LCS	Least Cost Selection
LOA	Loan Department

MOF	Ministry of Finance
NRW	Non-Revenue Water
NPV	Net Present Value
OBD	Output Based Disbursement
PATME	*Programa de Asistencia Técnica para la Mejora de la Eficiencia del Sector de Agua Potable y Saneamiento* (Modernization of the Water and Sanitation Sector Technical Assistance Project)
PDO	Project Development Objective
PECC	*Programa Especial de Cambio Climático* (Special Program for Climate Change)
PEF	Federal Expenditures Budget
PND	*Plan Nacional de Desarrollo* (National Development Plan)
PNH	*Programa Nacional Hídrico (*National Water Plan)
PNI	*Programa Nacional de Infraestructura* (National Infrastructure Plan)
PRODDER	*Programa de Devolución de Derechos* (Water Rights Returns Program)
PROME	*Programa de Mejoramiento de Eficiencia de Organismos Operadores* (Efficiency Improvement Program)
PWU	Participating Water Utility
OBD	Output Based Disbursement
ORAF	Operational Risk Assessment Framework
QCBS	Quality and Cost Based Selection
RBA	River Basin Agencies
RFP	Request for Proposals
SEMARNAT	*Secretaría de Medio Ambiente y Recursos Naturales (*Ministry of Environment and Natural Resources)
SEPA	*Sistema de Seguimiento de Planes de Adquisiciones* (Procurement Plan Follow Up System)
SFP	*Secretaria de la Función Pública* (Ministry of Public Administration)
SHCP	*Secretaria de Hacienda y Crédito Público* (Ministry of Finance and Public Credit)
SIAFF	Federal Integrated Financial Information System
SIL	Specific Investment Loan
SOE	Statement of Expenditures
TAP	Technical Assistance Program
TESOFE	*Tesoro Federal* (Federal Treasury)
UFW	Unaccounted for Water
WSS	Water Supply and Sanitation
WSSU	Water Supply and Sanitation Utilities

Regional Vice President:	Pamela Cox
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PAD DATA SHEET

United Mexican States
Water Utilities Efficiency Improvement Project (PROME)

PROJECT APPRAISAL DOCUMENT

Latin America and the Caribbean Region
Water and Urban Unit

Date: October 8th, 2010 Country Director: Gloria M. Grandolini Sector Director: Laura Tuck Sector Manager: Guang Z. Chen Team Leader(s): David Michaud, Alessandra Campanaro Project ID: P121195 Lending Instrument: Specific Investment Loan	Sector(s): Water supply (50 percent); Sewerage (25 percent); Central Government administration (25 percent) Theme(s): Access to urban services and housing (100 percent) EA Category: Category B

Project Financing Data:

Proposed terms:

IBRD Commitment-linked loan with variable spread, with all conversion options, US$ denominated, a bullet repayment on October 15, 2022 and interest payments made each April 15 and October 15.

[X] Loan [ ] Credit [ ] Grant [ ] Guarantee [ ] Other:

Source	Total Amount (US$ million)
Total Project Cost:	162
Cofinancing:	62
Borrower: United States of Mexico	
Total Bank Financing:	100
IBRD	100
IDA	
New	
Recommitted	

Borrower: United Mexican States

Responsible Agency: Comisión Nacional del Agua (CONAGUA)

Gerencia de Fortalecimiento de Organismos Operadores
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Estimated Disbursements (Bank FY/US$ million)

FY	2011	2012	2013	2014	2015
Annual	5	20	30	30	15
Cumulative	5	25	55	85	100

Project Implementation Period: January 1st, 2011 to December 31st, 2014
Expected effectiveness date: January 1st, 2011
Expected closing date: December 31st, 2014

Does the project depart from the CAS in content or other significant respects?	○ Yes x No
If yes, please explain:	

Does the project require any exceptions from Bank policies? Have these been approved/endorsed (as appropriate by Bank management? Is approval for any policy exception sought from the Board?	○ Yes x No ○ Yes ○ No ○ Yes x No
If yes, please explain:	

Does the project meet the Regional criteria for readiness for implementation?	x Yes ○ No
If no, please explain:	

Project Development objective (PDO)
The PDO is to improve the efficiency of Participating Water Utilities through the provision of Technical Assistance and Financing.

Project description [*one-sentence summary of each component]*
The first component is Water Supply and Sanitation Sector (WSS) sector information and knowledge management improvement; it would include two main lines of action: Management of information and Management of knowledge.
The second component is Modernization of the services of participating water utilities; it would finance physical and commercial efficiency improvement measures.

Safeguard policies triggered?	
Environmental Assessment (OP/BP 4.01)	x Yes ○ No
Natural Habitats (OP/BP 4.04)	○ Yes x No
Forests (OP/BP 4.36)	○ Yes x No
Pest Management (OP 4.09)	○ Yes x No
Physical Cultural Resources (OP/BP 4.11)	x Yes ○ No
Indigenous Peoples (OP/BP 4.10)	○ Yes x No
Involuntary Resettlement (OP/BP 4.12)	x Yes ○ No
Safety of Dams (OP/BP 4.37)	○ Yes x No
Projects on International Waters (OP/BP 7.50)	○ Yes x No
Projects in Disputed Areas (OP/BP 7.60)	○ Yes x No

Conditions and Legal Covenants:

Financing Agreement Reference	Description of Condition/Covenant	Date Due
ARTICLE V, clause 5.01 (a)	The *Contrato de Mandato*[1] has been duly executed by the parties thereto	Prior to effectiveness
ARTICLE V, clause 5.01 (b)	The Borrower, through separate legal opinions satisfactory to the Bank, issued by Borrower counsel acceptable to the Bank, from the Ministry of Finance and Public Credit (SHCP) and CONAGUA, and the Bank of National Savings and Financial Services (BANSEFI) (in a separate legal opinion satisfactory to the Bank, issued by BANSEFI counsel acceptable to the Bank), indicate that the *Contrato de Mandato* has been duly authorized or ratified by, and executed and delivered on behalf of, the Borrower, and BANSEFI and is legally binding upon the Borrower and BANSEFI in accordance with the *Contrato de Mandato*'s terms.	Prior to effectiveness
Schedule 2, Section IV, clause B 1. (b)	(i) The Output Based Disbursements (OBD) Operational Manual has been adopted by the Borrower, through CONAGUA, and is satisfactory to the Bank; and (ii) at least one Output-based Subproject Agreement (Anexo Técnico) shall have been entered into between the Borrower, through CONAGUA, and the Eligible Participating Water Utility (PWU).	Disbursement Condition for Category 3 corresponding to component 2C – pilot output-based disbursement investments window.
Schedule 2, Section I, Clause C	The Borrower shall carry out the Project in accordance with the provisions of the Environmental and Resettlement Framework, as well as the Operating Manual and the Output-Based Disbursement Manual.	Throughout project life

[1] "*Contrato de Mandato*" means the Agreement to be entered into among the Borrower, through SHCP, CONAGUA and BANSEFI, pursuant to the Loan Agreement's Section I.B.1 of Schedule 2.

I. STRATEGIC CONTEXT

A. Country Context

1. The Mexican economy is starting to recover from a deep contraction of economic activity following the global economic and financial crisis. As a relatively open economy, Mexico was hard hit by the collapse of international trade during the last quarter of 2008 and the first quarter of 2009. As a result, annual economic growth in 2008 was down to a meager 1.3 percent and Gross Domestic Product (GDP) actually fell by 6.5 percent in 2009. In line with a global recovery in production and trade, and responding positively to the Government counter-cyclical fiscal and monetary policies, economic activity in Mexico picked up in the second half of 2009 and economic growth is expected to moderate as of the second half of 2010 to about 3.8 percent in 2011. The recovery is led by resurgence in the demand for exports.

B. Sectoral and Institutional Context

The Challenges

2. **Mexico faces an acute water crisis due to accelerated population growth and suboptimal management of its water resources.** Severe regional disparity within the country in terms of water availability[2] persists[3], despite steady improvements in access to water over the past years, testifying to the Government's effort to reach a sustainable and more equitable water resources management. The overexploitation is especially dramatic in groundwater resources, and water quality is deteriorating due to the lack of adequate wastewater treatment[4]. Surface and groundwater in the country suffer heavily from overexploitation and contamination, due to an inefficient use of water in the context of water scarcity. In 1955, water availability in Mexico was 11,500 cubic meters (m^3) per person per year. By 2005, this amount decreased to 4,288 m^3 [5].

3. **The water supply and sanitation sector is characterized by significant physical and commercial inefficiencies and low level of financial cost recovery.** Compounding the water scarcity challenge is the fact that many of the water supply and sanitation utilities do not make efficient use of water resources. According to the most recent sector report published by the National Water Commission (CONAGUA)[6], the weighted average rate of Non-Revenue Water for water utilities (*organismos operadores*) in communities with a population of over 50,000 inhabitants is 38 percent, while the average tariff collection rate is 79 percent in a sample of utilities in municipalities with more than 50,000 inhabitants. In the same sample, the overall efficiency (an indicator used in Mexico to measure both operational and commercial losses)

[2] The semi-arid and arid North, Northwest, and central regions account for 85 percent of the gross domestic product (GDP) and contain 92 percent of irrigated areas, but they receive only 28 percent of the total runoff. Access to water is still a factor of poverty and marginalization, especially in rural and indigenous communities that rely almost totally on groundwater for their activities. In Mexico, 10.6 million people do not have access to drinking water, and only 37.9 percent of the rural population has a proper sewage system.

[3] Water Resources – averting a water crisis in Mexico; Douglas Olson and Gustavo Saltiel, in: Mexico 2006-2012: Creating the Foundations for Equitable Growth; World Bank, 2006

[4] *Agua, MedioAmbiente, y Sociedad: Hacia la Gestión Integral de los Recursos Hídricos en México*, Carabias and Landa; Universidad Autónoma de México, El Colegio de México, y Fundación Río Arronte (2005).

[5] *Estadísticas del Agua en México*, CONAGUA, edición 2010.

[6] *Situación del Subsector Agua Potable, Alcantarillado y Saneamiento*, CONAGUA, Edición 2009

amounts to 44 percent. In addition, according to the Bank's 2006 Public Expenditure Report[7], the sector as a whole falls far short of generating sufficient revenues to cover full costs[8]. In the sample cited earlier, for example, only 79 percent of operation and maintenance costs were recovered.

The institutional response

4. **The Federal Government considers water and sanitation a priority sector, and it is promoting significant investments in water, sanitation and urban drainage infrastructure projects, in part under private sector participation schemes.** Upon starting its mandate, the current administration launched a series of ambitious initiatives aimed at building a comprehensive national strategy in key sectors[9]. Among others, the PNH (National Water Program) sets out to invest close to US$10 billion in the water and sanitation sector up to 2012 through large-scale so-called emblematic projects in addition to on-going investment programs. In order to achieve the goals set out in the PNH, the Program also considers the need to strengthen the operational and commercial efficiency of water utilities, setting a goal of increasing the sector utilities' overall efficiency from 8 percent to 44 percent by 2012.

5. **To implement this strategy, CONAGUA - the institution responsible for the implementation of water sector policy framework[10] - can rely on a number of federal investment programs.** CONAGUA, the National Water Commission, is the apex institution of the sector. Its mission is to "manage the nation's water resources with participation by the society, aiming at the sustainable use of resources". CONAGUA has the mandate to implement the PNH through a number of federal investment subsidy programs, several of which also finance efficiency improvement activities[11]. In fact, overall federal funding for efficiency improvement, for example, has increased from about MX$290 million (US$23 million or 8 percent of overall federal WSS (Water Supply and Sanitation) sector spending) in 2002 to more than MX$4000 million in 2008 (US$315 million or 14 percent of overall federal WSS sector spending)[12]. However, these programs are not always fully coordinated in purpose and geographical focus; due to lack of harmonization among them, they consist mainly in financing mechanisms, rather than comprehensive sector modernization instruments.

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[7] World Bank. 2006. *Mexico: Water Public Expenditure Review (WaPER).*Washington D.C.: World Bank.

[8] Mexico Infrastructure Public Expenditure Review (IPER), Report No. 33483-MX, World Bank, 2005

[9] The National Development Plan 2007-2012 (PND) establishes objectives and strategies (to be fulfilled by the end of the current Administration in 2012), which are implemented by means of a set of Sectoral Programs 2007-2012. The water sector commitments of the PND are thus in line with the Environmental and Natural Resources Sectoral Program (Programa de Medio Ambiente y Recursos Naturales), implemented by SEMARNAT; the National Infrastructure Plan (PNI) implemented by the federal Government through CONAGUA in agreement with the Mexican Chamber for Construction; the PNH implemented by CONAGUA; and the Special Program for Climate Change (PECC) implemented by the Inter-Ministerial Commission on Climate Change (CICC).

[10] The Mexican Government's policy framework and efforts in the water sector are defined by three main instruments: the National Development Plan (PND), the National Infrastructure Program (PNI) and the National Water Program (PNH); these three plans have a strong policy coordination component that makes possible a sector framework in line with the government's development objectives.

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

[12] Pesos figures in nominal terms; *Situación del Subsector Agua potable, Alcantarillado y Saneamiento*, CONAGUA, Edición 2009

The PATME project: a pilot response to address efficiency improvements

6. **In order to explore the feasibility of a dedicated instrument to promote water utilities efficiency, CONAGUA launched in 2006 the PATME project.** The Modernization of the Water and Sanitation Sector Technical Assistance Project (*Programa de Asistencia Técnica para el Mejoramiento de Eficiencia,* PATME), which was partly financed through a US$25 million technical assistance loan from the Bank[13], was designed as a pilot technical assistance project to explore ways to significantly modernize participating water utilities. PATME supported the GOM's efforts to develop the tools and instruments to support local authorities in improving the financial sustainability and efficiency of water supply and sanitation service provision. CONAGUA has developed new standards and manuals in the field of efficiency improvements and has started collecting utility performance indicators. The project also supported the improvement of commercial and operational efficiency in a group of selected utilities.

7. **PATME, which closed in March 2010, has shown encouraging results and CONAGUA is interested in learning from it and scaling it up.** The Implementation Completion and Results Report[14] of the project has been recently completed. In the first three years of PATME, the global efficiency of participating utilities was increased by over 5 percentage points from 37.3 to 42.4 percent due to actions financed by PATME and other programs[15]. At the same time the PATME evaluation revealed the need for stronger supervision, more solid technical assistance especially to the weakest utilities, and greater flexibility in terms of fiduciary constraints for the most advanced utilities.

C. Higher Level Objectives to which the Project Contributes

8. **Mexico has had a longstanding partnership with the World Bank Group encompassing the delivery of the full menu of financial, knowledge, and coordination and convening services, and the on-going Country Partnership Strategy (CPS) for Mexico FY2008-2013[16] built on the Mexican authorities' desire to maintain such relationship.** The CPS recognizes in its March 2010 progress report *Developing Infrastructure and Assuring Energy Security and Environmental Sustainability* as a key theme. The Bank is also a key player in leveraging international experience to support innovative approaches to the challenges facing the WSS sector in Mexico, including for example large-scale efficiency improvement programs in a number of utilities in countries large and small throughout Latin America and the World.

9. **The proposed investment lending operation is part of a comprehensive engagement in the water sector, including a Development Policy Loan (DPL) recently approved and a non – lending Technical Assistance Program (TAP) currently under implementation, as well as a number of trust fund activities.** The DPL **(**P120134 - Adaptation to Climate Change in the Water Sector Development Policy Loan)[17] was approved on June 10, 2010 and is meant to support the Country's adaptation agenda in the water sector. The TAP was launched during a recent high level meeting between the Bank and CONAGUA, with representation from the

[13] P091695, approved by the Board in August 2005 and closed on March 31, 2010.
[14] Report No ICR00001371 dated September 30, 2010
[15]The collection efficiency index rose from 69.8 to 76.6 percent between 2006 and 2009 while the operational efficiency for the same period increased in a very moderate manner (from 53.4 to 55.3 percent).
[16] Report No. 42846-MX, March 4, 2008 discussed by the Board in April 2008.
[17] P120134, discussed by the Board on June 10, 2010.

Ministries of Environment and Finance. Several activities under this umbrella have already started implementation, such as supporting CONAGUA in development of the long term vision for the sector as well as working on a series of activities and preparation of papers to position adaptation to climate change in the water sector for the sixteenth Conference of the Parties (COP 16). Other trust fund-financed activities will support further engagement at federal, state and municipal levels on water scarcity and efficiency issues.

10. **Finally this project includes a component built on results-based approach.** The objective of such approach is to align and structure the work program around a limited series of results to monitor the implementation of the CPS. One of the three results selected for the Sustainable Development program in Mexico is to "Increase Efficiency and Improve Management of the Water Sector"; by focusing on efficiency improvement of participating water utilities, the proposed project is fully aligned with and contributes significantly to this result.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

11. The PDO is to improve the efficiency of Participating Water Utilities through the provision of Technical Assistance and Financing.

B. Project Beneficiaries

12. The main beneficiaries of the project will be decentralized water utilities located in urban communities with more than 20,000 inhabitants, which will have increased capacity with regards to efficiency improvement. Eligible water utilities will also benefit from a better management of knowledge and information and will be able to provide efficient, reliable water and sanitation services to their users, who will be the ultimate beneficiaries from the project.

C. PDO Level Results Indicators

13. The progress towards achieving the PDO will be monitored through the following indicators: [18]

- Number of water utilities whose collected revenues in Mexican pesos per cubic meter produced increases 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.

[18] For more information about the definition of indicators and technical terms, refer to the results framework (Annex 1) and the glossary in Annex 9

III. PROJECT DESCRIPTION

A. Project Components

Component 1: WSS sector information and knowledge management improvement (estimated cost: US$4.75 million, IBRD funding: US$4.75 million)

Improving water supply and sanitation institutions' capacity with regards to efficiency improvement, through the provision of the necessary Goods, Training, Non-Consultant Services, Consultant Services, and Operating Costs to CONAGUA to enable it to carry on: (a) management of information activities; and (b) management of knowledge activities.

14. This component would continue information and knowledge management activities undertaken under the PATME project and generally support CONAGUA's work in improving the WSS sector actors' capacity with regards to efficiency improvement. To achieve this, the component will include two main lines of action.

15. **Management of information.** CONAGUA will seek to develop a body of information that will improve analysis and decision making processes within CONAGUA and in the sector generally. Some of the activities contemplated include:

- *Continuation of work on the development of standardized indicators to be used to measure WSSU's performance.* Under PATME, work on such standards was initiated, however the resulting draft standards are not currently being implemented and a number of conflicting indicators are being used. Under PROME, the component will finance consultancies to continue this work.
- *Harmonization activities on existing WSSU information system.* CONAGUA currently operates three different information systems, with different geographical scopes, purposes, periodicity and indicators. While these systems – which are maintained by different departments within CONAGUA – would be initially maintained, the project would seek to link and cross-reference the data they contain and move towards a harmonization of indicators and definitions. As such, under PROME, consultancies as well as the development of information systems will be financed.
- *Internal and external benchmarking.* In addition, CONAGUA is also seeking to make this data more public and more user-friendly. An annual compendium of data from hundreds of WSSU is already being published in paper form, but it does not allow for easy benchmarking and comparison between WSSU or over time. CONAGUA is interested in providing a more processed version of this information, either through an analytical report or through an interactive website offering benchmarking tools. To achieve this, PROME will finance consultancies and possibly the development of a web-based platform for performance benchmarking.

16. **Management of knowledge.** Within CONAGUA, the unit that would implement the PROME project is generally responsible for capacity building activities and would continue and strengthen its efforts to improve the sector's capacity to provide efficient, reliable water and sanitation services. In particular, some of the activities contemplated include:

- *Development of norms and standards.* Over the course of the PATME project, several sets of norms and standards were developed, in part to support the establishment of a clear framework for sector performance monitoring. Work on this normative framework would be continued under the PROME project, through the financing of studies to develop and finalize the needed norms and standards.
- *Development of manuals.* CONAGUA also developed several well-received manuals during the PATME project, such as one on physical and energy efficiency improvements. Under PROME CONAGUA will continue such activities.
- *Documentation and dissemination of good practices.* CONAGUA is interested in documenting good practices developed by Mexican water utilities for improvements in efficiency and generally better management. This component would finance consultancies to document and activities to disseminate such good practices.
- *Training.* CONAGUA also organized the training of hundreds of representatives of WSSU staff on topics related to efficiency improvement and this Component will continue to finance such training under PROME.
- *Documentation.* Finally, CONAGUA will also use financing from this component to document the experience and review the lessons learned under the project – generally and in particular under the output-based disbursement window (Component 2C).

17. All of the activities under this component would be implemented by CONAGUA's WSSU Institutional Strengthening Unit itself.

Component 2: Modernization of the services of participating water utilities (estimated cost: 157 million, IBRD funding: US$ 95 million)

(a) Provision of support for the carrying out of diagnostic studies, preparation of investment plans and support for the efficiency improvement of Participating Water Utilities (PWUs), through the provision of Financing to PWUs for the implementation of Technical Assistance Subprojects.

(b) Provision of support for the carrying out of physical and commercial efficiency improvements, through the provision of Financing to PWUs for the implementation of Efficiency Subprojects.

(c) Provision of support for the carrying out of physical and commercial efficiency improvements, through Output-based disbursements to Eligible PWUs, for the implementation of pilot Output-based Subprojects.

18. This component, implemented by the water utilities themselves, would finance physical and commercial efficiency improvement measures. Under PATME, less than 20 water utilities participated in the project, and these were mostly hand-picked to create a representative sample of pilot models. No specific criteria, types of investments or investment ceilings were established and there was limited supervision and focus on results. Given the scale-up that PROME entails, and the vision of creating a self-standing federal program, a much larger number of utilities will participate in PROME.

19. Aside from the utilities already involved under PATME, CONAGUA seeks to focus this program initially on a number of utilities in the Mexico Valley (*Valle de Mexico*), which includes close to 40 water utilities with variable, but generally low efficiency, and where a large investment program is underway, potentially requiring utilities to cover higher operations and maintenance costs. Other utilities that might participate include those with particularly low levels of efficiency. CONAGUA expects that a total of 70 to 80 utilities will participate in PROME overall.

20. To cater to the different needs and modernization levels of the participating utilities, this component would entail three different windows targeted at supporting utilities wherever they are in their strengthening process. Those three windows are described in the following paragraphs.

21. **Component 2A: Technical Assistance (total cost: US$ 7 million):** all participating utilities would have access to a technical assistance window throughout the project. Initially, this window would finance a diagnostic and investment plan that would prioritize investments to be conducted under PROME and other federal programs; later in the process, the window could finance studies on a case-by-case basis, for example on tariff and subsidies, governance structure, or specific operational or commercial efficiency issues. CONAGUA would finance 75 percent of the cost of diagnostics and 60 percent of the cost of other technical assistance activities under this window, while the WSSU would finance the rest.

22. **Component 2B: Classical Efficiency Investments (total cost: US$ 145 million):** utilities that have completed an initial assessment study or already had one, could enter the classical efficiency investments window, which would operate under rules very similar to the previous PATME project. This window would finance typical operational and commercial improvements similar to those financed under PATME, such as establishment of District Metering Areas, active leakage control, source and consumer water meter installation, supply and installation or upgrade of billing system, etc. This window would represent the core of PROME's investment. All investment measures would have to be based on a diagnostic study that would establish financing priorities together with a specific baseline and an easily measurable target for each action. The project would finance 60 percent of the cost of efficiency improvements, with the WSSU financing the rest. No formal ceiling would be established (under PATME, availability of counterpart financing has proven an effective mechanism to control the amount being assigned to a given WSSU); however, utilities that do not use the funds assigned to them in previous years or fail to show overall efficiency improvements would see their assignation decrease.

23. **Component 2C: Pilot Output-based Efficiency Investments (total cost: US$ 5 million):** among existing and potential participating utilities, some are much more advanced than others in the implementation of efficiency improvement measures; this window would cater to their higher level of sophistication, generally financing similar activities as the classical investment window but using outputs, rather than inputs, as the basis for disbursement. Given the challenges presented by the design of such a mechanism, CONAGUA and the Bank have agreed to design this window as a pilot limited to a few indicators, activities and utilities, at least initially. Further details about the design of the window are included in Annex 8. In addition, this window will only become operational once an operating manual acceptable to the Bank has been completed. CONAGUA would finance 60 percent of the cost of the activities under this

window, while the WSSU would finance the rest. No formal ceiling would be used and the same principles as in the Classical Efficiency Investments window apply. In case the OBD Pilot cannot be implemented as expected, funds assigned to component 2C (disbursement category 3) might be reassigned to Component 2B.

24. All of the windows under this component would be implemented by the WSSU themselves, under the technical and fiduciary supervision of CONAGUA's regional branches and River Basin Agencies. Further details about implementation arrangements are included in Annex 3.

B. Project Financing

1. Lending Instrument

25. The proposed loan in the amount of US$100 million is designed as a Specific Investment Loan (SIL), combining investments and technical assistance financing. This amount will be complemented by a further US$62 million provided by participating WSSU and municipal and State institutions, as was the case under PATME.

2. Project Financing Table (US$ millions)

Components	IBRD	WSSU	TOTAL
Component 1: WSS sector information and knowledge management improvement	4.75	0.0	**4.75**
Component 2: Modernization of the services of participating water utilities	95.0	62.0	**157.0**
2A: Technical Assistance	*5.0*	*2.0*	***7.0***
2B: Classical Efficiency Investments	*87.0*	*58.0*	***145.0***
2C: Pilot Output-Based Efficiency Investments	*3.0*	*2.0*	***5.0***
Front-end Fee	**0.25**		**0.25**
Total	**100.0**	**62.0**	**162.0**

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

26. **The proposed implementation arrangements would mirror those of the recently closed PATME.** The project will be implemented by CONAGUA and, more specifically, by the WSSU Institutional Strengthening Unit (*Gerencia de Fortalecimiento de los Organismos Operadores*), which was also implementing the PATME project. As was the case in the PATME project, *Banco del Ahorro Nacional y Servicios Financieros* - BANSEFI is expected to act as a financial agent, and will continue supervising project fiduciary aspects, including procurement implementation. In addition, implementation of Component 2 will be largely decentralized to participating utilities, similarly to the case of PATME.

27. **The implementing agency has a solid track record in implementing Bank-financed projects.** The final Implementation Status and Results Report (ISR) of the PATME project rates

overall implementation progress, Project Management, Financial Management, Counterpart Funding, Procurement and Monitoring & Evaluation as satisfactory. The recently closed Integrated Irrigation Modernization Project's Implementation Completion and Results Report (ICR)[19] also rates CONAGUA's performance as the implementing agency as satisfactory, noting in particular its experience in Bank-financed projects and the continuity of the team responsible for implementation. The recently completed ICR for PATME[20] rates CONAGUA's performance as the implementing agency as moderately satisfactory, primarily because of some shortcomings with regards to technical supervision; these have been addressed in the design of the new operation.

28. **Given the large size of the new loan in comparison with PATME, accompanying measures are considered.** The proposed project's amount – US$162 million – represents a three-fold increase over PATME and the number of participating water utilities is expected to increase in the same proportion. CONAGUA recognizes this challenge and is considering several complementary measures (refer to Annex 3 for further details):

- CONAGUA is considering strengthening the capacity of the WSSU Institutional Strengthening Unit by hiring a limited number of new staff to support the team.
- CONAGUA's regional branches and River Basin Agencies[21] will be responsible for technical supervision of efficiency actions implemented by the WSSU located in their region.
- The WSSUs will be responsible for contracting and supervising efficiency improvement actions, all of which will be verified by CONAGUA.

29. **The Role of the States.** CONAGUA will work together with relevant States and their Water Commissions. Coordination Agreements between CONAGUA and the States will be used to establish the roles and responsibilities of the involved actors. Refer to Annex 3 for further details.

30. **The project will be implemented at federal and sub-national levels, including a flow of funds to the States and procurement processes to be carried out by water utilities.** However, most Financial Management (FM) and procurement activities, including information system, budgeting, accounting and financial reporting, will be coordinated by CONAGUA's central office, which has a strong system of FM internal and external controls in place. The project will also make large use of the country FM systems, including accounting, budgeting, treasury, internal control and auditing.

B. Results Monitoring and Evaluation

31. The project-level monitoring and evaluation framework will allow for the tracking of progress in implementation, measuring intermediate results and evaluating project outcomes. All the project indicators will be monitored and updated on an annual basis. In order to update the PDO Level Results Indicators, CONAGUA will need to collect the data from the participating

[19] Report No: ICR00001133 of March 26, 2010.
[20] Report No: ICR00001371 of September 29,2010.
[21] Definitions in Glossary (Annex 9).

Water Utilities, while for Components 1 and 2 (intermediate results indicators), the core information will be provided by CONAGUA itself.

32. Project Reports will be produced by CONAGUA's monitoring and evaluation system – elaborated under PATME - to describe the main achievements of the project on a semi-annual basis. They will include complete information on contracts, procurements, disbursements, detailed information on the project's financial status, inputs, number of beneficiaries and other outputs, and a range of additional operational output and outcome indicators to track project status. The project Report will also contain detailed information on Financial Management, as a single semi-annual report, which will include project Interim unaudited Financial Reports (IFRs), will be submitted to the Bank. The WSSU Institutional Strengthening Unit will be in charge of producing the reports, relying on data provided by CONAGUA's regional branches and River Basin Agencies as well as the WSSU. These reports will be used by the Bank and CONAGUA. Details are presented in Annex 3.

C. Sustainability

33. **Financially: Ensuring investments are made on a solid financial and technical basis.** A financial evaluation of a sample of the activities financed under the previous PATME project has shown that these generally yield positive financial outcomes. Activities under PROME will be similar to those under PATME; these activities will be based on assessment study and investment plans that would include a financial model of the corresponding WSSU and allow the WSSUs to base their investment priorities on technical grounds. Only activities aligned with the utility diagnostic will be eligible for financing from PROME; this ensures that only sustainable actions will be supported by the project.

34. **Environmentally: Improving efficiency and managing water demand.** In many of the participating utilities, water is currently scarce. The project is expected to decrease the overall water demand from the participating utilities through more efficient systems as well as better demand control through systematic metering and collection revenues. In addition, the project will also support the improvement of energy efficiency in participating WSSU, allowing those to produce the same amount of water with lower energy consumption. Works contemplated under the project will not generate significant negative environmental impacts, and an environmental framework has been prepared.

35. **Socially: Providing improved services to the population.** Although the direct focus of the project is to improve the efficiency rather than the quality of services, a WSSU that is operating in a more efficient manner is more likely to be able to provide long-lasting, good quality services to its customers. More water will be available for paying customers, and overall costs will be lower. In addition, some of the measures supported under Component 1 – especially those focused on information and benchmarking - will also ensure greater transparency and accountability of participating WSSU, which in turn will contribute to make service more sustainable.

V. KEY RISKS

36. **The overall risk level for the proposed project is Medium- driven by likelihood.** Most risks are linked to a possible slowed implementation, rather than a direct threat to achieving the PDO. The key issues identified are:

- **Institutional capacity and Project design.** Given the larger loan amount (when compared to PATME) and the additional complexity of PROME, CONAGUA could find it difficult to cope with the increased workload, possibly leading to a slower than expected disbursement and political pressure to simplify project design. Additionally, the project could be subject to competitive pressure by other funding programs (like APAZU) that also offer resources in issues related to water efficiency.
- **Counterpart financing.** During the implementation of PATME, some of the participating utilities had to scale down their participation due to the lack of counterpart financing. While the current macro-economic context is improving again, it is conceivable that this situation occurs under the PROME project as well and that implementation is slowed down or affected by discontinuity.
- **Project impact.** The project will finance a series of activities that, taken together, are expected to improve the efficiency of participating utilities. However, as the experience with PATME and other projects before has shown, the expected improvement does not always materialize, be it for lack of continuity in the implementation of the proposed measures, weak planning or poor implementation reasons.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

37. **Overview.** The analysis for this project concentrates on those activities contemplated in the Classical Efficiency Investment Window since this component represents 87 percent of the financing. Given the lack of systematized information and that activities in this component are the same as in the PATME, the analysis is based on an indicative group of activities financed by PATME in different water utilities that exemplify the expected outcome and impact of the project. A selected group of three representative (in terms of financial standing, size, institutional capacity, type of activity) water utilities has been selected; for each, the investment programs activities undertaken under the project were investigated.

38. **The project is expected to generate a significant positive financial impact, while the economic impact could not be quantified accurately.** The financial analysis indicated that the activities implemented under PATME (and contemplated under PROME) had a positive financial benefit and generated positive net present values in all three utilities that were investigated, as shown in the table below. The same analysis also showed positive efficiency improvements in all three utilities. However, no meaningful economic analysis could be completed due to the lack of adequate data to quantify economic benefits generated by Project activities. This refers, in particular, to the dearth of data on opportunity costs, both for water saved and for the capital invested in state water subsidies that were not used efficiently. Attempts at circumventing these missing data led to inconclusive results that were not deemed worth presenting. However, during project implementation, the team will provide technical assistance to CONAGUA to obtain the missing data and develop an economic evaluation framework to be

used for future sub-projects. The improvement of systematic collection and analysis of sector information envisaged under Component 1 of the project should also contribute to address the issue of data deficiency in carrying out robust economic analysis.

(NPV in million US**$)**

	Number of Connections	**NPV**	**IRR**
Naucalpan	143,309	$ 33.44	35.9%
Gómez Palacio	78,248	$ 6.20	19.4%
Durango	136,949	$ 15.75	23.1%

39. Annex 7 contains a more detailed description of the analysis, including the methodology used, its assumptions, main results and lessons learned, and the salient aspects which were incorporated in the design of PROME.

B. Technical

40. **The efficiency improvement activities considered under PROME have been used under the PATME project.** These activities include structural measures, such as rehabilitation and improvement of water production, transportation and distribution systems, creation of District Metering Areas, replacement of inefficient electromechanical equipments, installation of water meters and monitoring equipments and systems; as well as non-structural measures such as the development or upgrade of Information Systems used for water consumer registration, hydraulic network modeling, billing management, as well as the development of studies necessary to improve the efficiency of the participating WSSU. Such measures have been applied successfully in the previous PATME project as well as in other programs funded by the GoM. Annex 7 includes some additional details about efficiency improvements achieved in a sample of PATME utilities.

41. **Efficiency improvement programs will be based on data analysis and regularly monitored.** As part of project preparation the Bank team has worked closely with CONAGUA to develop the Terms of Reference for an initial diagnostic and investment plan that will be completed in all participating WSSU that lack one. This study will provide a solid basis on which to prioritize the measures to be financed under the project, and will also provide a simple, activity-by-activity monitoring framework that CONAGUA will use to evaluate whether the activities financed under the project are yielding the expected results.

C. Financial Management

42. **As part of project preparation, a Financial Management Assessment (FMA) of CONAGUA was conducted.** The assessment was conducted by Bank staff in accordance with OP/BP 10.02 and Guidelines for Assessment of Financial Management Arrangements in World Bank-Financed Projects, and took into account the fact that CONAGUA has just completed the implementation of the PATME project.

43. **The project will be implemented on federal and sub-national levels, including a flow of funds to the States and procurement processes to be carried out by state water utilities.** However, most FM and procurement activities, including information system, budgeting,

accounting and financial reporting, will be coordinating by CONAGUA's central office, which has a strong system of FM internal and external controls in place. The project will also make large use of the country FM systems, including, accounting, budgeting, treasury, internal control and auditing. The project would also include a small component (Component 2C) based on OBD mechanism. In this case, reliable, quantifiable and tangible unit costs and final outputs will be determined for disbursing purposes.

D. Procurement

44. **The procurement arrangements under the project will mirror those of the already implemented and closed PATME project.** The implementing agency will be CONAGUA's Office of Water Utilities Strengthening (*Gerencia de Fortalecimiento de los Organismos Operadores*), and the *Banco del Ahorro Nacional y Servicios Financieros* (BANSEFI) is expected to continue functioning as financial agent. Both will continue supervising project fiduciary aspects, including procurement implementation.

45. **Procurement for the proposed Project will be carried out in accordance with the World Bank's Guidelines and the provisions stipulated in the Legal Agreement.** The applicable guidelines are: "Guidelines: Procurement under IBRD Loans and International Development Association (IDA) Credits" dated May 2004 and revised October 2006 and May 2010, and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004 and revised October 2006 and May 2010. For each contract to be financed by the loan, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements and time frame are agreed between the Borrower and the Bank project team in the Procurement Plan (August 6, 2010). The Procurement Plan will be updated at least annually or as required to reflect actual project implementation needs and improvements in institutional capacity.

46. **The Project will include a pilot under Output Based Disbursement mechanisms (Component 2C).** The Bank and CONAGUA will discuss the procedures to implement it, procurement-wise, based on Bank's November 7, 2005 Guidance Memo, April 2007 Technical Notes and related instructions. The Bank will reimburse eligible expenditures under this component to CONAGUA upon Interim Financial Report, which would include a detailed technical data on unit reference costs and final outputs delivered by each eligible subproject. Annually, eligible financed amount under this component will be confirmed/validated through technical audit to be conducted by acceptable auditor or consultants.

47. **The Client has requested a US$ 20 million retroactive financing window to finance activities to be conducted in its budget year 2010, starting on June 1st, 2010.** For advance contracting and retroactive financing, CONAGUA may conduct procurement processes for eligible contracts in accordance with IBRD Procurement and Consultants Guidelines, with Bank's prior review and within the limits specified in the Loan Agreement.

E. Social

48. **Based on PATME experience, only 4 percent of all projects involved infrastructure civil works and it is expected that this percentage will remain on a similar level for PROME.** The project does not foresee large adverse environmental or social impacts, so simplified frameworks have been agreed with the Bank to provide guidance on safeguards

policies. No environmental and social risks or issues that go beyond the coverage of the safeguards policies are expected.

49. **PROME triggers OP 4.12. on Involuntary Resettlement.** CONAGUA has been exposed to implementing projects with Environmental and Resettlement Framework. However, since PATME did not trigger any safeguards policies and was categorized as C type, the implementing team has limited experience on safeguards compliance particularly and the Bank´s team will work with CONAGUA to ensure full alignment with Bank´s policies and national norms when the need arises. It should be noted that this safeguard is only triggered preventively as no resettlement (or land expropriation) took place under the PATME project and no resettlement is currently expected under the PROME project either. In order to comply with the policy, a resettlement framework including an adequate screening process for works proposals has been prepared and disclosed in country on July 2nd, 2010 and on the InfoShop on July 6th, 2010.

F. Environment

50. **PROME is classified as a category B project and triggers OP 4.01 due to the nature of the works proposed.** CONAGUA has the institutional capacity and specific procedures in place (formalized in manuals) needed to guarantee that the federal environmental legislation in relation with Environmental and Resettlement Framework is fully complied; nevertheless, the type of activities to be supported with PROME fall mainly in a local, non federal, regulation that applies to the water companies at municipal level. The proposed activities seek to improve efficiency related infrastructure (mainly electromechanical equipment and a reduced number of minor construction works), which in essence imply low environmental impacts that can be addressed through the use of a simplified framework as an integral part of construction contracts. CONAGUA prepared the Environmental and Resettlement Framework acceptable to the Bank, describing and evaluating the possible environmental impacts generated by the project's activities and determines mitigation measures to be applied in each construction contract with a simple monitoring system based on legal obligations established in the Federal, State, and Municipal environmental legislations. The Environmental and Resettlement Framework has been disclosed in country on July 2nd, 2010 and on the InfoShop on July 6th, 2010.

51. **Additionally, Safeguard 4.11 Physical Cultural Resources is triggered,** since the construction works involve excavations and earth movements and some of these construction works might be located near physical cultural resources. Thus, it is necessary to guarantee that the Bank safeguard and the ample local legislation in this matter (INAH *Instituto Nacional de Antropologia e Historia*) is fully complied by construction companies in a similar manner as the environmental issues. The corresponding requirements are included in the project's Environmental and Resettlement Framework.

ANNEX 1: RESULTS FRAMEWORK AND MONITORING

COUNTRY: Water Utilities Efficiency Improvement Project (PROME)
Results Framework

Project Development Objective (PDO): The PDO is to improve the efficiency of Participating Water Utilities through the provision of technical assistance and financial transfers.											
PDO Level Results Indicators*	**Core**	**Unit of Measure**	**Baseline**	**Cumulative Target Values****				**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**	**Description (indicator definition etc.)**
				YR 1	**YR 2**	**YR3**	**YR 4**				
Indicator One: Number of water utilities whose collected revenues in Mexican pesos per cubic meter produced increases by 5 percent in real terms.	☐	Unit	0	0	8	18	30	Annual	Customer database and reports of volume of water produced	Water Utilities	Year a WSSU joins PROME will determine WSSU baseline.
Indicator Two: Number of water utilities whose energy consumption in kWh per cubic meter produced decreases by 5 percent.	☐	Unit	0	0	1	3	8	Annual	Reports of energy consumption and reports of volume of water produced	Water Utilities	Year a WSSU joins PROME will determine WSSU baseline.
Indicator Three: Number of water utilities showing a commercial efficiency improvement of 5 percent or more.	☐	Unit	0	0	8	18	30	Annual	Customer database	Water Utilities	Year a WSSU joins PROME will determine WSSU baseline.
Indicator Four: Average absolute increase of global efficiency in water utilities that participated in the Project for at least 2 years.	☐	Percent	0	0	0	1	2	Annual	Customer database and Water Utilities data.	Water Utilities	Weighted average by number of connections
INTERMEDIATE RESULTS											
Intermediate Result (Component One): WSS sector information and knowledge management improvement											
Intermediate Result indicator One: Number of water utilities´ employees trained in issues related to efficiency programs.	☐	Unit	0	200	400	600	800	Annual	Attendance report	CONAGUA	
Intermediate Result indicator Two: Number of publications	☐	Unit	0	1	3	5	7	Annual	CONAGUA´s website	CONAGUA	

related to efficiency issues available at CONAGUA´s website.											
Intermediate Result indicator Three: National Tariff System is available in user friendly website.	☐	Yes/No	No	No	No	Yes	Yes	Annual	CONAGUA´s website	CONAGUA	
Intermediate Result (Component Two): Modernization of the services of the water utilities											
Intermediate Result indicator One: Percentage of implemented actions that achieved their set targets[22]	☐	Percent	N/A	60	60	60	60	Annual	CONAGUA's monitoring system	Water Utilities	Based on the target set individually for each action.
Intermediate Result indicator Two: Number of water utilities that participated in the OBD window.	☐	Unit	0	0	0	1[23]	1	Annual	Contracts based on results	CONAGUA	
Intermediate Result indicator three: Number of water utilities that participated in the project.	☒	Unit	0	20	30	40	50	Annual	CONAGUA's monitoring system	Water Utilities	

***Please indicate whether the indicator is a Core Sector Indicator (see further http://coreindicators)**
****Target values should be entered for the years data will be available, not necessarily annually.**

[22] The respective targets for the different activities under this Component will be established by CONAGUA once the actions to be implemented are defined.
[23] Given the uncertainties linked with the design and subsequent uptake by WSSU for this OBD window, CONAGUA and the team have agreed on setting a conservative target even though the expectation is that 2 – 3 WSSU might participate.

ANNEX 2: DETAILED PROJECT DESCRIPTION

Component 1: WSS sector information and knowledge management improvement (estimated cost: US$4.75 million, IBRD funding: US$ 4.75 million)

Improving water supply and sanitation institutions' capacity with regards to efficiency improvement, through the provision of the necessary Goods, Training, Non-Consultant Services, Consultant Services, and Operating Costs to CONAGUA to enable it to carry on: (a) management of information activities; and (b) management of knowledge activities.

1. This component would continue information and knowledge management activities undertaken under the PATME project and generally support CONAGUA's work in improving the WSS sector actors' capacity with regards to efficiency improvement. To achieve this, the component will include two main lines of action.

2. **Management of information.** CONAGUA will seek to develop an information basis that will improve analysis and decision making processes within CONAGUA and in the sector generally. Some of the activities contemplated include:

- *Continuation of work on the development of standardized indicators to be used to measure WSSU's performance.* Under PATME, work on such standards was initiated, however the resulting draft standards are not currently being implemented and a number of conflicting indicators are being used. Under PROME, the component will finance consultancies to continue this work.
- *Harmonization activities on existing WSSU information system.* CONAGUA currently operates three different information systems, with different geographical scopes, purposes, periodicity and indicators. While these systems – which are maintained by different departments within CONAGUA – would be initially maintained, the project would seek to link and cross-reference the data they contain and move towards an harmonization of indicators and definitions. As such, under PROME, consultancies as well as the development of information system will be financed.
- *Internal and external benchmarking.* In addition, CONAGUA is also seeking to make this data more public and more user-friendly. An annual compendium of data from hundreds of WSSU is already being published in paper form, but it does not allow for easy benchmarking and comparison between WSSU or over time. CONAGUA is interested in providing a more processed version of this information, either through an analytical report or through an interactive website offering benchmarking tools. To achieve this, PROME will finance consultancies and possibly the development of a web-based platform for performance benchmarking.

3. **Management of knowledge.** Within CONAGUA, the unit that would implement the PROME project is generally responsible for capacity building activities and would continue and strengthen its efforts to improve the sector's capacity to provide efficient, reliable water and sanitation services. In particular, some of the activities contemplated include:

- *Development of Norms and Standards.* Over the course of the PATME project, several sets of norms and standards were developed, in part to support the establishment of a clear framework for sector performance monitoring. Work on this normative framework would be continued under the PROME project, through the financing of studies to develop and finalize the needed norms and standards.
- *Development of manuals.* CONAGUA also developed several well-received manuals during the PATME project, such as one on physical and energy efficiency improvements. Under PROME CONAGUA will continue such activities.
- *Documentation and dissemination of good practices.* CONAGUA is interested in documenting good practices developed by Mexican water utilities for improvements in efficiency and generally better management. This component would finance consultancies to document and activities to disseminate such good practices.
- *Training.* CONAGUA also organized the training of hundreds of representatives of WSSU staff on topics related to efficiency improvement and this component will continue to finance such training under PROME.
- *Documentation.* Finally, CONAGUA will also use financing from this component to document the experience and review the lessons learned under the project – generally and in particular under the output-based disbursement window (Component 2C).

4. All of the activities under this component would be implemented by CONAGUA's WSSU Institutional Strengthening Unit itself.

Component 2: Modernization of the services of participating water utilities (estimated cost: US$157 million, IBRD funding: US$95 million)

(a) Provision of support for the carrying out of diagnostic studies, preparation of investment plans and support for the efficiency improvement of PWUs, through the provision of Financing to PWUs for the implementation of Technical Assistance Subprojects.

(b) Provision of support for the carrying out of physical and commercial efficiency improvements, through the provision of Financing to PWUs for the implementation of Efficiency Subprojects.

(c) Provision of support for the carrying out of physical, and commercial efficiency improvements, through Output-based disbursements to Eligible PWUs, for the implementation of pilot Output-based Subprojects.

5. This component, implemented by the water utilities themselves, would finance physical and commercial efficiency improvement measures. Under PATME, less than 20 water utilities participated in the project, and these were mostly hand-picked to create a representative sample of pilot models. No specific criteria, types of investments or investment ceilings were established and there was limited supervision and focus on results. Given the scale-up that PROME entails, and the vision of creating a self-standing federal program, a much larger number of utilities will participate in PROME.

6. Aside from the utilities already involved under PATME, CONAGUA seeks to focus this program initially on a number of utilities in the Mexico Valley (*Valle de Mexico*), which includes close to 40 water utilities with variable, but generally low efficiency, and where a large investment program is underway, potentially requiring utilities to cover higher operations and maintenance costs. Other utilities that might participate include those with particularly low levels of efficiency. CONAGUA expects that a total of 70 to 80 utilities will participate in PROME overall.

7. To cater to the different needs and modernization levels of the participating utilities, this component would entail three different windows targeted at supporting utilities wherever they are in their strengthening process. Those three windows are described in the following paragraphs.

8. **Component 2A: Technical Assistance (total cost: 7M):** all participating utilities would have access to a technical assistance window throughout the project. Initially, this window would finance a diagnostic and investment plan that would prioritize investments to be conducted under PROME and other federal programs; later in the process, the window could finance studies on a case-by-case basis, for example on tariff and subsidies, governance structure, or specific operational or commercial efficiency issues. CONAGUA would finance 75 percent of the cost of diagnostics and 60 percent of the cost of other technical assistance activities under this window, while the WSSU would finance the rest.

9. **Component 2B: Classical Efficiency Investments (total cost: 145M):** utilities that have completed an initial assessment study or already had one, could enter the classical efficiency investments window, which would operate under rules very similar to the previous PATME project. This window would finance typical operational and commercial improvements similar to those financed under PATME, such as establishment of District Metering Areas, active leakage control, source and consumer water meter installation, supply and installation or upgrade of billing system, etc. This window would represent the core of PROME's investment. All investment measures would have to be based on a diagnostic study that would establish financing priorities together with a specific baseline and an easily measurable target for each action. The project would finance 60 percent of the cost of efficiency improvements, with the WSSU financing the rest. No formal ceiling would be established (under PATME, availability of counterpart financing has proven an effective mechanism to control the amount being assigned to a given WSSU); however, utilities that do not use the funds assigned to them in previous years or fail to show overall efficiency improvements would see their assignation decrease. The following table highlights the typical activities that will be funded under this window.

Activities funded under Classical Efficiency Investments Window.

Physical efficiency	Energy efficiency	Commercial efficiency
• Network register and hydraulic modeling • District Metering Area implementation • Source and district-level meter installation • Leak detection and repair campaigns	• Electromechanical equipment replacement or refurbishment • Operation optimization	• Commercial and billing system replacement / update • Customer meter installations • Customer database update • Re-engineering in meter reading, billing and collection sub-systems. • Implementation or

Physical efficiency	Energy efficiency	Commercial efficiency
• Hydraulic system optimization • Pressure control installation and pressure management • Rehabilitation of network infrastructure. • Improvement in water sources • Improvement in water storage capacity		improvement of technological platform (software and hardware). • Implementation or updating customer services and complains management processes.

10. **Component 2C: Pilot Output-based Efficiency Investments (total cost: 5M):** among existing and potential participating utilities, some are much more advanced than others in the implementation of efficiency improvement measures; this window would cater to their higher level of sophistication, generally financing similar activities as the classical investment window but using outputs, rather than inputs, as the basis for disbursement. Given the challenges presented by the design of such a mechanism, CONAGUA and the Bank have agreed to design this window as a pilot limited to a few indicators, activities and utilities, at least initially. Further details about the design of the window are included in Annex 8. In addition, this window will only become operational once an operating manual acceptable to the Bank has been completed. CONAGUA would finance 60 percent of the cost of the activities under this window, while the WSSU would finance the rest. No formal ceiling would be used and the same principles as in the Classical Efficiency Investments window apply. In case the OBD Pilot cannot be implemented as expected, funds assigned to Component 2C (disbursement category 3) might be reassigned to Component 2B.

11. All of the windows under this component would be implemented by the WSSU themselves, under the technical and fiduciary supervision of CONAGUA's regional branches and River Basin Agencies. Further details about implementation arrangements are included in Annex 3.

Estimates of Project Costs, by Component (US$ million)

Components	IBRD	WSSU	TOTAL
Component 1: WSS sector information and knowledge management improvement	4.75	0.0	**4.75**
Component 2: Modernization of the services of participating water utilities	95.0	62.0	**157.0**
2A: Technical Assistance	*5.0*	*2.0*	***7.0***
2B: Classical Efficiency Investments	*87.0*	*58.0*	***145.0***
2C: Pilot Output-Based Efficiency Investments	*3.0*	*2.0*	***5.0***
Front-end Fee	**0.25**		**0.25**
Total	**100.0**	**62.0**	**162.0**

ANNEX 3: IMPLEMENTATION ARRANGEMENTS

1. Project administration mechanisms

1. **The proposed implementation arrangements would mirror those of the recently closed PATME.** The project will be implemented by CONAGUA and, more specifically, by the WSSU Institutional Strengthening Unit (*Gerencia de Fortalecimiento de los Organismos Operadores*), which was also implementing the PATME project. As was the case in the PATME project, *Banco del Ahorro Nacional y Servicios Financieros* - BANSEFI is expected to act as a financial agent, and will continue supervising project fiduciary aspects, including procurement implementation. In addition, implementation of Component 2 will be largely decentralized to participating utilities, similarly to the case of PATME.

2. **The implementing agency has a solid track record in implementing Bank-financed projects.** The latest ISR of the PATME project rates overall implementation progress, Project Management, Financial Management, Counterpart Funding, Procurement and Monitoring & Evaluation as satisfactory. The recently closed Integrated Irrigation Modernization Project's draft ICR also rates CONAGUA's performance as the implementing agency as satisfactory, noting in particular its experience in Bank-financed projects and the continuity of the team responsible for implementation.

3. **The following paragraphs present the implementing arrangements for PROME, which remain similar to those under PATME:**

- **Overall Technical Coordination** will be lead by CONAGUA's WSSU institutional strengthening unit (*Gerencia de Fortalecimineto de los Organismos Operadores*). This unit can count on a key dedicated staff that has been successfully implementing PATME and is expected to continue implementing PROME as well. In addition, given the larger size of the project, a few additional persons might be brought in to strengthen this core staff.

- **Coordination with the Ministry of Finance, the Bank and other actors** will be led by CONAGUA's External Financing Department. This Department has carried out the same function under PATME and is not expected to require strengthening to assume this function.

- **Component 1 implementation** will also be the responsibility of the same group tasked with overall technical coordination, in line with the arrangements under PATME. Other relevant units from CONAGUA's Drinking Water Division will also be involved on a case-by-case basis for coordination purposes.

- **Component 2 implementation** will be the responsibility of the participating WSSU. Since most activities will be contracted out by the utilities, the WSSU will have technical responsibility for technical supervision of the contractors. In addition, CONAGUA's Regional Directions (*Direcciones Locales*) and Basin Agencies (*Organismos de Cuenca*), which have technical staff, will be in charge of providing a first level of technical verification on behalf of CONAGUA. Training will be provided to this staff as needed to ensure that they have the appropriate capacity to monitor the component's activities.

4. **Institutional agreements for implementing the operation include coordination agreements between CONAGUA and participating States and Municipalities, which will be signed as the project is implemented.** The detailed process for selected utilities to participate in the program would mirror that of PATME:

- Once compliance with eligibility criteria has been assessed, CONAGUA will formalize the participation of the relevant municipality/utility through the signature of a Memorandum of Understanding.
- Based on existing planning documents, the relevant municipality/utility will submit a proposal to CONAGUA and the Bank for an efficiency improvement program outlining priority actions to be funded under the project, which should be based on an existing planning document or diagnostic. Should a planning document or diagnostic not be available, the elaboration could be funded out of Project proceeds.
- The proposal to be submitted by the relevant municipality/utility or the diagnostic to be designed will include a financial analysis of the proposed efficiency improvement program as well as a procurement plan for the execution of the investments in compliance with Bank guidelines.
- Once the proposed efficiency improvement program has been assessed by CONAGUA and the Bank - and agreed upon with the relevant municipality/utility, the Federal and State Government will subscribe the annexes (*anexo técnico*) of a Coordination Agreement (Financial Support Agreement), which will establish on a multi-annual basis, amongst other things, the agreed-upon actions and requirements for utility modernization and the technical and financial support to be provided by the Federal Government to achieve it. The corresponding municipality/utility would also subscribe the agreement.
- The executing agent as indicated in the Agreement (Utility/Municipality) will be responsible for the execution of the Project and fulfillment of the Agreement.

5. **The Role of the States.** CONAGUA will work together with relevant States and their Water Commissions. Coordination Agreements between CONAGUA and the States will be used to establish the roles and responsibilities of the involved actors. Based on the experience under PATME, different models will be followed with regards to the role of the States depending on their technical and financial capacity, which will include:

- Providing counterpart financing to participating WSSU (e.g. State of Mexico)
- Providing personalized technical assistance to participating WSSU (e.g. State of Guanajuato)
- Replicating PATME/PROME assistance model in other WSSU (e.g. State of Jalisco).

2. Financial Management, Disbursements and Procurement

6. From the Fiduciary point of view, there are no major capacity constraints. The overall project implementation will be carried out/coordinated by CONAGUA, which has strong institutional structures and high capacity for implementation of Bank-financed projects, including smooth interfaces with BANSEFI, the potential financial agent, and the Ministry of Finance (SHCP). Most FM activities, including budgeting, accounting and financial reporting, will be carried out based on the existing FM arrangements for the recently concluded PATME, which are considered satisfactory to the Bank, and they will be coordinated by the personnel of

Gerencia de Recursos Financieros (GRF) who has ample experience dealing with Bank-financed operations and a strong system of FM internal and external controls in place.

a) Financial Management

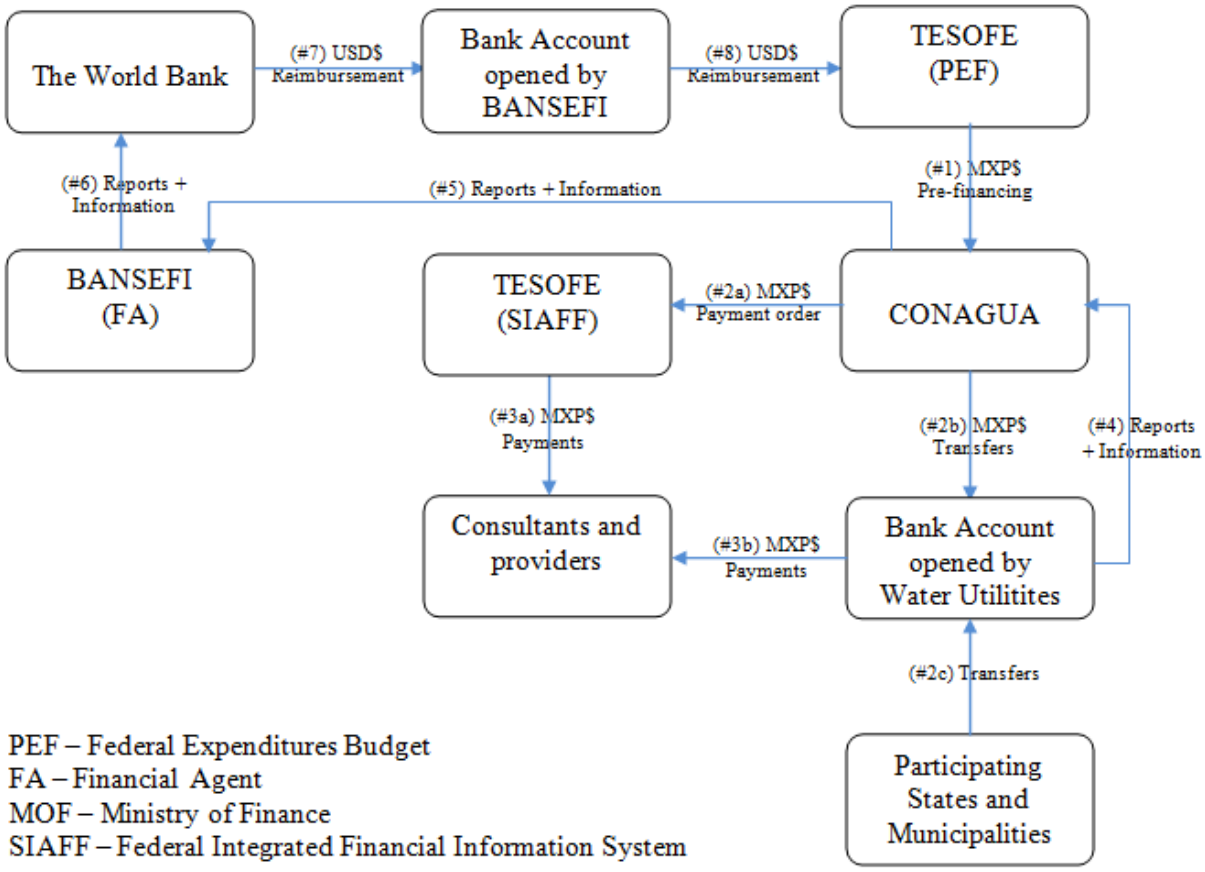
7. The project will be implemented on federal and sub-national levels, including a flow of funds to the States and procurement processes to be carried out by state water utilities. However, most FM and procurement activities, including information system, budgeting, accounting and financial reporting, will be coordinating by the CONAGUA's central office, which has a strong system of FM internal and external controls in place. The project will also make large use of the country FM systems, including, accounting, budgeting, treasury, internal control and auditing. The project would also include a small pilot component based on OBD mechanism. In this case, reliable, quantifiable and tangible unit costs and final outputs will be determined for disbursing purposes.

8. The Project FM control measures will include: (i) strong country public FM arrangements and their large use by the project; (ii) CONAGUA's coordination of most FM activities, including budgeting, accounting and financial reporting; (iii) program integration into the national budget; (iv) reimbursement of eligible expenditures recorded under earmarked budgetary lines and pre-financed by the Government and upon receiving of al supporting documentation, including those expenditures incurred on sub-national level; (v) project detailed implementation on sub-national level will be agreed through technical annexes of the coordination agreements signed between CONAGUA and all participating States; (vi) internal auditing procedures according to Public Audit Standards and Guidelines; (vii) semiannual non-audited Interim Financial Reports (IFRs), which will include technical data for OBD component; (viii) external financial and technical audits (for OBD component) to be performed by auditors and consultants acceptable to the Bank of Project Financial Statements, Statement of Expenditures (SOEs) and project reports; (ix) support to the CONAGUA from BANSEFI, as the financial agent; (x) two full FM supervision missions per year.

9. Since identification stage of the project cycle, the FM team has been working jointly with the rest of the team on project preparation, including definition of the FM-related arrangements. As part of this project, the FM section of the project Operations Manual was reviewed and considered acceptable for the Bank; on the other hand, as per agreement with Ministry of Public Administration (SFP), the audit practice will be strengthened through involvement of the State Controller offices at the follow-up process on external auditor's findings. With regards to component 2C (OBD efficiency improvements), detailed FM arrangements, including the definition of unit costs and audit mechanisms (e.g. agreement on specific Terms of Reference for the annual technical audit), will need to be finalized as part of the OBD Operational Manual. The approval by the Bank of this Manual is a condition of withdrawal for the corresponding disbursement category.

10. Two full FM supervision missions will be carried out per year, which will look into the operation of the control systems and arrangements described in this annex. Desk reviews of IFRs and audit reports will also be carried out.

b) Disbursements



11. The general flow of funds and disbursement arrangements are described in the following chart and explained below:

1) The Federal Treasury (TESOFE) assigns funds as part of the national budget (PEF) to CONAGUA.
2) CONAGUA finances project expenditures and transfers to participating WSSU from the national budget (PEF).
3) As technical annexes to the coordination agreements between CONAGUA and participating States are agreed and/or expenditures are incurred, CONAGUA issues transfers to the bank account managed by Water Utilities and/or payment orders (*Cuenta por liquidar certificada*, CLC) to TESOFE, who in turn issues the payments to consultants and providers. In some cases, the participating States and/or Municipalities also could transfer their local contributions to the same Bank account managed by Water Utilities.
4) Once, expenditures are incurred by the WSSU, they will submit supporting documentation to CONAGUA, through *Gerencia de Recursos Financieros* (GRF).
5) CONAGUA will aggregate and summarize all payments in a Statement of Expenditures (SOE) format, and will submit it to BANSEFI.
6) BANSEFI will review the SOE and submit it formally, together with a loan withdrawal application, to the Bank.
7) The Bank will reimburse the eligible funds into a bank account opened by BANSEFI

8) BANSEFI will reimburse TESOFE.

12. The primary disbursement mechanism, as explained before, will be a reimbursement; however, once a specific framework for national audits on performance based budget programs is established by the Mexican Government as part of their country systems, the Bank would reimburse eligible expenditures under Component 2C to CONAGUA upon customized SOE format, which would include a detailed technical data on unit costs and final outputs delivered by each eligible subproject (refer to Annex 8 for further details). Annually, eligible financed amount under this component will be confirmed/validated through technical audits to be conducted by acceptable auditor or consultants. The format and contents of the technical data of the IFRs and project report, as well as specific Terms of Reference for the annual technical audit would be a disbursement conditions for this component.

13. As it was agreed with the Government after Negotiations, the project funds also could be advanced into a segregated designated account in US$. The Designated Account (DA) will be opened and managed by BANSEFI in a financial institution acceptable to the Bank. Details for the ceiling of advances and banking arrangements will be included in the Disbursement Letter. The proposed disbursement table follows.

Category	**Amount of the Loan Allocated (expressed in US$)**	**Percentage of Expenditures to be financed (inclusive of Taxes)**
(1) Goods, Training, Non-consultants Services, Consultant's Services and Operating Costs under Part 1 of the Project	4,750,000	100%
(2) Goods, Works, Non-Consultants Services, Consultant's services, Operating Costs and Training financed through: (a) Technical Assistance Subprojects under Part 2(a) of the Project. (b) Efficiency Subprojects under Part 2(b) of the Project	 5,000,000 87,000,000	100%
(3) Output-based Subprojects under Part 2(c) of the Project.	3,000,000	100% of the actual Outputs at the applicable Unit Cost of the Outputs included in the respective Output-based Subproject Agreement (*Anexo Técnico*).
(4) Front-end Fee	250,000	Amount payable pursuant to Section 2.03 of this Loan Agreement, in accordance with Section 2.07(b) of the General

Category	Amount of the Loan Allocated (expressed in US$)	Percentage of Expenditures to be financed (inclusive of Taxes)
		Conditions.
(5) *Premia* for Interest Rate Caps and Interest Rate Collars	-0-	Amounts due under Section 2.07 (c) of the Loan Agreement
TOTAL AMOUNT	**100,000,000**	

c) Procurement

14. The procurement arrangements under the project will mirror those of the already implemented and closed PATME project. The implementing agency will be CONAGUA's Office of Water Utilities Strengthening (*Gerencia de Fortalecimiento de los Organismos Operadores*), and the *Banco del Ahorro Nacional y Servicios Financieros* (BANSEFI) is expected to continue functioning as financial agent. Both will continue supervising project fiduciary aspects, including procurement implementation. Guidelines Procurement under IBRD Loans and IDA Credits, Version May 2004, revised October 2006 & May 2010; and Guidelines: Selection and Employment of Consultants by World Bank Borrowers, Version May 2004, Revised October, 2006 & May 2010 will apply.

15. Procurement of civil works, goods and non-consultant services are expected via International Competitive Bidding, National Competitive Bidding and Shopping, utilizing the harmonized documents for Mexico or other documents approved by the Government of Mexico and the Bank. The bidding documents to be used may include language that prohibits the use or procurement of pesticides, as needed. The harmonized Request for Proposals (RFP) for Mexico and methods for the selection of consultants (QCBS, LCS and FBS) have been approved by the SFP. International shortlists for consultant firms will be formed for tasks estimated to cost above US$500,000. Direct contracting of civil works, goods and services will have Bank's prior approval and follow the provisions of the Bank Guidelines. Records keeping will be maintained as in PATME. Thresholds for prior review and per method are in the Procurement Section of the Project Operations Manual.

16. Once the pilot under Output Based Disbursement mechanisms (OBD) window becomes operational, the Bank and CONAGUA will discuss the procedures to implement it, procurement-wise, based on Bank's November 7, 2005 Guidance Memo, April 2007 Technical Notes and related instructions.

17. For advance contracting and retroactive financing, once approved by the SFP, CONAGUA shall conduct procurement processes for eligible contracts in accordance with IBRD Procurement and Consultants Guidelines, with Bank's prior review and within the limits specified in the Loan Agreement.

18. Prior review thresholds are established in the procurement plan; the scope of contracts subject to post review should be not less than 15 percent of the contracts not subject to prior review by the Bank. The inclusion in PROME of water utilities with no experience in dealing

with IBRD procurement procedures poses a certain risk. In order to mitigate it, each new utility will have mandatory prior review of the first one contract per method, and its personnel will have to attend training on procurement under IBRD Guidelines. CONAGUA, together with the Bank Team, plans to conduct a wide training and workshop program on Bank procurement and consultant guidelines, including Bank anti-fraud and anti-corruption policies. Frequency of post review should be not less than once a year as part of regular Bank fiduciary supervision. Both CONAGUA and BANSEFI will conduct selective prior review of procurement actions implemented at the level of the participating entities.

19. CONAGUA will work with the Financial Agent on developing a more comprehensive mechanism to supervise the activities carried out by the participating water utilities. Procurement supervision by the Bank will continue focusing on the new WSSUs.

20. The SEPA system (*Sistema de Seguimiento de Planes de Adquisiciones*), an IT system that allows to create, track and update procurement plans, will continue to be the mechanism to submit the project's Procurement Plan and its modifications to the Bank for No Objection. The procurement plan will be based on the needs of CONAGUA and the water utilities participating in the project, and define the corresponding packaging of activities into procurement activities.

3. Environmental and Social (including safeguards)

a) Environmental safeguards

21. CONAGUA prepared an Environmental and Resettlement Framework acceptable to the Bank that will describe and evaluate the possible environmental and physical cultural resources impacts generated by the project's activities and determine mitigation measures to be applied in each construction contract. The Environmental and Resettlement Framework has been disclosed in country on July 2nd, 2010 and on the InfoShop on July 6th, 2010. It is expected that this Framework will only apply to substantial civil works which will probably represent only about 4 percent of the total investment of PROME.

22. The primary responsibility for the implementation of the framework will be with the participating WSSU, under the supervision of the local CONAGUA agencies and in some cases, where environmental permits apply, by the responsible regulatory agencies. The team and CONAGUA will determine, on a case-by-case basis, the need to provide training on environmental safeguards to WSSUs and CONAGUA´s local agencies which will supervise the application of environmental framework application.

b) Social safeguards

23. CONAGUA prepared an Environmental and Resettlement Framework acceptable to the Bank, even though at the moment no resettlement is expected to take place under the project. The Environmental and Resettlement Framework was disclosed in country on July 2nd, 2010 and on the InfoShop on July 6th, 2010. Given the expected limited use of this instrument, training will be provided on a case-by-case basis should there be investment proposed where a resettlement might occur. The Framework offers an adequate screening mechanism for this.

4. Monitoring & Evaluation

24. The project-level monitoring and evaluation framework will allow for the tracking of progress in implementation, measuring intermediate results and evaluating project outcomes. CONAGUA's current monitoring systems will provide satisfactory data for establishing baselines, which will be complemented with information provided by the WSSU. All the project indicators will be monitored and updated on an annual basis. In order to update the PDO Level Results Indicators, CONAGUA will need to collect the data from the Water Utilities, while for Components 1 and 2 (intermediate results indicators), the core information will be provided by CONAGUA.

25. Project Reports will be produced by CONAGUA's monitoring and evaluation systems to describe the main achievements of the Project on a semi-annual basis. They will include complete information on contracts, procurements, disbursements, detailed information on the Project's financial status, inputs, number of beneficiaries and other outputs, and a range of additional operational output and outcome indicators to track project status. The Project Report will also contain detailed information on Financial Management, as a single semi-annual report, which will include project Interim unaudited Financial Reports (IFRs), will be submitted to the Bank. The WSSU Institutional Strengthening Unit will be in charge of producing the reports, relying on data provided by CONAGUA's regional branches and River Basin Agencies as well as the WSSU. These reports will be used by the Bank and CONAGUA.

26. Considering the scale of the new project, which represents a three-fold increase over PATME, it is expected that the number of participating water utilities will rise in the same proportion. Thus, CONAGUA´s capacity to track and monitor the indicators will need to be strengthened. In order to perform this task, CONAGUA will use their regional branches and River Basin Agencies to collect and compile information from the WSSU located in their region. All of the data will be managed in an information management system already developed under the PATME project.

5. Role of Partners (if applicable)

27. Not applicable

ANNEX 4: OPERATIONAL RISK ASSESSMENT FRAMEWORK (ORAF)

Project Development Objective(s)	
The PDO is to improve the efficiency of Participating Water Utilities through the provision of technical assistance and financing.	
	1. Number of water utilities whose collected revenues in Mexican pesos per cubic meter produced increases by 5 percent in real terms
	2. Number of water utilities whose energy consumption in kWh per cubic meter produced decreases by 5 percent
	3. Number of water utilities showing a commercial efficiency improvement of 5 percent or more
	4. Average absolute increase in global efficiency in water utilities that participated in the project for at least 2 years

Risk Category	Risk Rating	Risk Description	Proposed Mitigation Measure
1. Stakeholder Risks			
1.1 Stakeholder	M-L	Role of States and Municipalities. Such institutions play a role both in terms of counterpart funding and their involvement in the project is necessary in order to ensure sustainable results.	✓ The role of states and municipalities in terms of flow of funds is exemplified in Annex 3; additionally selected states (including Mexico State) will be involved and engaged in the PROME as this reinforces the implementation and effectiveness of the project. Finally, the large number of participating WSSU ensures that overall that risk would be lowered ; if specific WSSU cannot or do not want to continue under PROME, other WSSU can be brought in.
2. Operating Environment Risks			
2.1 Country	M-I	The risk of a less favorable international economic environment and, in particular, a "hard landing" of the US economy, would have a significant impact on growth prospects and the Government's ability to maintain expenditure levels for key development programs.	✓ No mitigation measures are considered under this project.
2.2 Institutional Risk (sector & multi-sector Level)	M-L	Change of political priorities at national level. Federal elections will be held in 2012. Since the project is scheduled to close in 2014, it might be affected by the institutional transitions. Counterpart funds availability. Political changes at Municipal level and consequent staff re-arrangements.	✓ It is expected that the Bank engages in dialogue with the new Administration during the political transition through preparation of Policy Notes and other instruments. PROME will be instrumental to inform the dialogue. ✓ Assurance that budgetary funds at the federal level would be included in the budget for state and municipal counterpart funds (see mechanism used under APAZU). ✓ Component 2 activities will be based on a diagnostic, and financial incentives will be in place for water utilities with continued participation.

Risk Category	Risk Rating	Risk Description	Proposed Mitigation Measure
3. Implementing Agency Risks (including FM & PR Risks)			
	M-L	Overall. The implementing agency has a solid track record in Bank-Financed projects and has the necessary resources, both human and financial, and adequate processes in place.	✓ During preparation the team has worked with CONAGUA on developing a more comprehensive mechanism to supervise the activities carried out by the participating water utilities, and on disseminating Bank Guidelines and policies against fraud and corruption as well.
4. Project Risks			
4.1 Design	M-L	Increased Scope and complexity, in terms of geographical area, institutional arrangements through several implementation agencies and fourfold size of project. Limited experience with Output Based Disbursement, and potential controversies around its set up and use at institutional and technical level. Competition with other federal programs and possible crowding out from other sources of funding.	✓ CONAGUA and the Bank have agreed on a more comprehensive, decentralized implementation structure to ensure the project's complexity does not overwhelm project implementation. ✓ The proposed methodology (Annex 8) will ensure that principles of economy and efficiency will be respected. Agreed Unit Reference Costs will be checked against CONAGUA's extensive cost database as well as the cost of prior similar activities contracted competitively under PATME. ✓ Periodic independent technical audit of actual outputs would be conducted. ✓ The WB team jointly with CONAGUA reviewed counterpart financing levels under other federal programs in order to design an attractive structure for the PROME.
4.2 Delivery Quality	M-I	Impact. The planned activities – under Component 1 and even more under Component 2 – might not lead to the expected outcome in terms of increasing the efficiency of participating utilities in a measurable way. Sustainability. The of high level efficiency pursued by the project might be difficult to sustain once the project is over.	✓ Compared to PATME, PROME will include a number of additional measures aimed at ensuring a sound investment program, such as the requirement that all actions be based on an initial diagnostic and closer technical supervision. ✓ An improved technical supervision mechanism will be planned in order to ensure that activities financed are implemented in a technically sound way. ✓ The project will seek to document progress made by participating utilities to show the benefits of continuity in implementing efficiency-improvement measures.

Overall Risk Rating at Preparation	Overall Risk Rating During Implementation	Comments
M-L	M-L	Most risks are linked to a possible slowed implementation, rather than a direct threat to achieving the PDO, and key issued identified are linked to institutional capacity and project design, counterpart financing, and project impact.

ANNEX 5: IMPLEMENTATION SUPPORT PLAN

Strategy and Approach for the Implementation Support

1. The Implementation Support Strategy design is built on the following key considerations:

   a. The project is a continuation of a prior, successful project, but represents a significant scale-up.
   b. Its implementation is largely decentralized to participating WSSU.
   c. CONAGUA has extensive experience in implementing World-Bank funded projects.
   d. The project involves significant technical complexity in terms of how to ensure the financed activities actually lead to the project's PDO.
   e. The Client has requested a retroactive financing window of US$20 million to finance activities to be conducted in its budget year 2010.

2. As a result the proposed Implementation Support Strategy is

   a. The project will be supervised by a HQ-based team which will coordinate with the local Country Office as necessary. In addition to the usual sector, safeguard and fiduciary staff, the team will also include a small number of high-level international consultants who have been involved in project preparation and will continue to assist the Borrower during project implementation, in particular with the more delicate efficiency improvement aspects of the project.
   b. Supervision will start immediately after Board Approval to ensure that activities to be financed retroactively are aligned with the project's design. In addition, this early supervision will also allow for finalize and initiate the procurement of the activities for fiscal year 2011. Frequency of supervision missions is expected to be 2-3 missions per year.
   c. Fiduciary and safeguards trainings will be offered early on to participating WSSU's staff and the team's fiduciary and safeguards staff will initially be providing support and advice to their counterparts in addition to their supervision function.

3. The Implementation Plan will be revised regularly during implementation on the basis of project progress and continuous risk assessment.

Implementation Support Plan

4. **Technical Support.** Most of the investments contemplated under the project are technically relatively complex especially in terms of ensuring that the activities to be funded actually result in the expected efficiency improvements.

   a. *Component 1* will entail some policy discussions as well as more detailed technical support in order to properly supervise the activities implemented by CONAGUA.

CONAGUA has the necessary technical capacity to implement those activities but is also interested in obtaining the Bank's technical advice on specific issues.

b. *Component 2*, which will be implemented by WSSU, is also technically relatively complex and will be implemented by WSSU with varying levels of capacity. The design of the project, which includes the preparation of initial diagnostics, the training of the WSSU staff and the provision of standard Terms of Reference and Technical Specifications, has sought to minimize the technical strain on the utilities themselves. However, relatively close supervision will be needed to ensure that the activities are implemented in a satisfying manner.

5. **Fiduciary support.** CONAGUA has extensive experience with implementation of World-Bank funded project. Specifically:

a. *Procurement:* Prior Review thresholds are established in the Procurement Plan, the scope of prior review should be not less than 15 percent of the contracts not subject to prior review by the Bank. Given the significant differences in the procurement capacity of existing and potential participating utilities, each new utility participating in PROME will have mandatory prior review of the first one contract per method and its personnel will have to mandatory attend training on procurement under IBRD Guidelines. Bank's project Team is ready to support CONAGUA, once the inclusion of the new Operators has taken place and the training program is prepared. Frequency of post review should be not less than once a year as part of regular Bank fiduciary supervision.

b. *Financial Management:* FM supervision will consist of a possible mission at the time of effectiveness (to ensure successful implementation of FM arrangements), review of annual audit reports (to provide assurance regarding the proper use of funds), review of semi-annual financial reports (to monitor the implementation of the project) and at least two FM supervision missions, at least at the beginning of project implementation (to review the continuing acceptability of FM arrangements).

6. **Safeguards support.** CONAGUA has been exposed to implementing projects with Bank safeguards. However, since the PATME project was a category C project with no safeguards triggered, the implementing team (Office of Water Utilities Strengthening within CONAGUA) has limited experience in the implementation of environmental and social safeguards; the Bank´s team will hence work closely with CONAGUA's technical staff on project implementation and trainings on safeguards will be provided to key stakeholders whenever appropriate. However, since the project does not foresee large environmental or social impacts, only simplified social and environmental safeguards instruments were prepared; their implementation is not expected to generate significant needs for support.

7. **Policy and technical support.** Besides the supervision of the project itself, CONAGUA has shown in past years interest to obtain Bank advice on a relatively wide range of issues. Trust Funds and technical experts will be mobilized on a demand-basis to respond to such requests.

8. **Implementation main focus.** The following table summarized the main focus of implementation during the life of the project.

Time	Focus	Resource Estimate	Partner Role
First twelve months	Getting the project underway, ensuring the scale-up mechanisms are functioning well.	120 percent of supervision budget	NA
12-48 months	Ensuring activities funded contribute to the project's PDO.	Normal supervision budget	NA
Closing	Drawing lessons learned and mainstreaming good practices, implementing policy recommendations.	Normal supervision budget + ICR budget	NA

II. Skills Mix Required

9. The following table summarizes the proposed skill mix and number of staff weeks in the initial phase of project implementation. It is expected that demand will decrease and change with time.

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Sector Specialist	10	4-6	1-2 persons
Environmental Specialist	1	1	
Social Specialist	1[24]	1	
Procurement Specialist	4	1	
Financial Management Specialist	2	2	
Disbursement Specialist	2	0	
Consultant on operational efficiency improvement aspects	4	2-3	
Consultant on commercial efficiency improvements aspects	4	2-3	
Other specific consultants	4	4	

III. Partners

10. No external partners are identified under this project.

[24] Depending on needs.

ANNEX 6: TEAM COMPOSITION

World Bank staff and consultants who worked on the project:

Name	Title	Unit
David Michaud	Sr Water & Sanitation Spec. and TTL	LCSUW
Alessandra Campanaro	Infrastructure Finance Specialist and Co-TTL	LCSUW
Diego Juan Rodriguez	Senior Economist	ETWWA
Jose M. Martinez	Senior Procurement Specialist	LCSPT
Dmitri Gourfinkel	Finance Analyst	LCSFM
Jose C. Janeiro	Senior Finance Officer	CTRFC
Miguel-Santiago Oliveira	Finance Officer	CTRFC
Luis Tineo	Senior Infrastructure Specialist	GPOBA
Jose Luis Calderon	Consultant , Environmental aspects	LCSUW
Maria Poli	Consultant, Social aspects	LCSSO
Luis Vega	Consultant, Social aspects	LCSUW
Mariana Montiel	Sr. Counsel	LEGLA
Solange A. Alliali	Sr. Counsel	LEGLA
Luiz Alcoforado	Consultant, Legal	LEGEN
Rosa Elena Bellido	Language Program Assistant	LCSUW
Yerania Sanchez	Junior Professional Associate	LCSSD
Cintia Vega	Junior Professional Associate	LCSUW
Pery Nazareth	Consultant, Output-based disbursement	LCSUW
Daniel Nolasco	Consultant, technical aspects	LCSUW
Luis Poggi	Consultant, Commercial Efficiency Improvements	LCSUW
Fabio Garzón	Consultant, Operational Efficiency Improvements	LCSUW
Oscar Melo	Consultant, Financial and Economic Evaluation	LCSUW
Arturo Jimenez	Consultant, Output-based disbursement	LCSUW
Manuel Marino	Lead Water and Sanitation Specialist, Peer-Reviewer	ECSS6
Alexander Danilenko	Sr Water & Sanitation Specialist, Peer-Reviewer	ETWWP
Manuel Contijoch	Sr Water Resources Specialist, Peer-Reviewer	LCSEN

ANNEX 7: ECONOMIC AND FINANCIAL EVALUATION

Methodology

1. The analysis for this project concentrates on those activities contemplated in the Classical Efficiency Investment Window since this component represents 87 percent of the financing. Given the lack of systematized information and that activities in this component are the same as in the PATME, the analysis is based on an indicative group of activities financed by PATME in different water utilities that exemplify the expected outcome and impact of the project. A selected group of three representative (in terms of financial standing, size, institutional capacity, type of activity) water utilities has been selected; for each, the investment programs activities undertaken under the project were investigated.

2. No meaningful economic analysis could be completed due to the lack of adequate data to quantify economic benefits generated by project activities. This refers, in particular, to the dearth of data on opportunity costs, both for water saved and for the capital invested in state water subsidies that were not used efficiently. Attempts at circumventing these missing data led to inconclusive results that were not deemed worth presenting. Nevertheless, the conclusions found further below in this section discuss some of the key economic benefits that were identified. In addition, during project implementation, the team will provide technical assistance to CONAGUA to obtain the missing data and develop an economic evaluation framework to be used for future sub-projects.

Projects and Activities Selected

3. Three utilities were selected and evaluated taking into account their different sizes of the utilities, location, and type of investment (see table 1):

Table 1: Projects and activities selected

Size	Location	Representative Water Utility
Medium/large	Valle México	Naucalpan, Estado de Mexico
Small/medium	Elsewhere	Gómez Palacio, Durango
Medium/large	Elsewhere	Durango, Durango

Financial Analysis

4. The financial conditions of the utilities were assessed and a cash flow analysis with and without the project was performed for each one of the activities selected to determine the financial impact of the interventions. A sensitivity analysis was conducted to identify the main financial risks and viability. The avoided cost methodology was used for most activities because, given the nature of the interventions, avoided costs represent the potential benefits for the utilities (private benefits). A sensitivity analysis was conducted to examine the robustness of the results. The financial analysis used a discount rate of 9 percent, which was consistent with market values. The analysis suffered from severe data limitations, which required making several assumptions. The lack of audited financial statements for the representative water utilities also affected many of the results.

Assumptions

5. The assumptions taken for this analysis are:

- Cost and benefits are projected for a 25 year period,
- Demand for water remains constant in time,
- Operation and maintenance cost remain unchanged with investments,
- Environmental benefits and higher customer satisfaction are not included in the analysis,
- Only 50 percent of non-electric operational cost varies with total volume of water produced by the utility,
- Electrical operational cost varies directly with total volume of water produced, by a rate of 2 cents per cubic meter. This represents the average cost between water utilities included in PATME.

Identification of Benefits for the Financial Analysis

6. The financial effects considered in this appraisal are the increase in revenues collected and the declines in operational costs resulting from decreased water losses. These financial effects should be adjusted to take economic costs and benefits into consideration. According to CONAGUA the cost of transporting water is US$1.18 per cubic meter, but the utilities are only required to pay 36 cents per cubic meter, which was the amount used in the financial evaluation.

Results and Conclusions of the Analysis

7. Activities aimed at improving **commercial efficiency** led to significant improvements in billing and collections. Representative cases analyzed showed a significant positive financial impact, increasing the financial sustainability of water utilities (see table 2).

Table 2: Commercial Efficiency Improvements Achieved under PATME

	Increase in Collected Payments
Naucalpan	16%
Gómez Palacio	8%
Durango	20%

8. In all cases, activities to improve **physical efficiency** yielded a decline in unaccounted-for water in the order of 3.5 to 7.5 percent, indicating that, from a technical standpoint, the interventions were successful (see Table 3).

Table 3: Physical Efficiency Improvements Achieved under PATME

	Reduction in UFW
Naucalpan	3.5%
Gómez Palacio	7.5%
Durango	5.0%

9. As a result, the investment programs in all the utilities analyzed showed positive financial returns (see Table 4).

Table 4: Results of Financial Analysis

(NPV in million US**$)**

	Number of Connections	NPV	IRR
Naucalpan	143,309	$ 33.44	35.9%
Gómez Palacio	78,248	$ 6.20	19.4%
Durango	136,949	$ 15.75	23.1%

10. Main conclusions of the analysis are:

- The representative cases analyzed yielded a significant and positive financial impact by improving billing system and collections, and increasing the financial sustainability of water utilities. All three utilities analyzed have positive financial returns.
- In most cases, a combination of activities to improve efficiency provides the highest financial returns. Hence, isolated interventions will not improve the financial sustainability of the operators.
- The economic benefits of activities to increase **physical and commercial efficiency** are difficult to quantify because they are primarily related to decreases in inefficiencies from overconsumption of two resources (water and public funds), whose opportunity costs cannot be evaluated without significant data collection and processing. However, some conclusions can be made in this regard.
  - Given the significant water scarcity affecting many parts of Mexico, it can be expected that the opportunity cost of water is relatively high, and hence, the project had positive economic impacts.
  - In addition, the fact that all three utilities have seen their financial situation improve as a result of the project potentially decreases the need for long-term subsidies from the central and local Governments, hence yielding an additional economic benefit.

11. The analysis suffered for severe limitations in the data. As such, several assumptions had to be inferred and, on the financial side, the lack of audited financial statements for the representative water utilities curtailed many of the results. The project will support improved information management, which should allow for improved analysis during the project's life.

Lessons Learned for Design of PROME

12. The results of this analysis were internalized in the design of this operation through:

- Even though Component 2 could finance physical efficiencies, PROME will concentrate primarily on commercial efficiencies which have demonstrated to be financially sustainable and generate positive financial returns,

- PROME will concentrate on the Valley of Mexico where more robust economic and financial returns have been appreciated,
- The requirement that all investments measures will be based on a diagnostic will enable the identification of the group of actions that will ensure the achievement of a particular efficiency goal. The appraisal clearly demonstrates that the utilities that execute a series of activities towards an efficiency goal, rather than one isolated activity, generate more positive returns,
- The activities with the largest financial returns are those in which continuity in the participation in the program is ensured. PROME incorporates incentive measures to ensure a longer term participation of utilities in the program (throughout the duration of the project).
- The importance of data and monitoring and evaluation cannot be overstressed. The lack of information was a major impediment in conducting a thorough analysis and also in being able to measure impacts with more accuracy. The new project will tackle this issue under Component 1.

ANNEX 8: COMPONENT 2C / OBD WINDOW: IMPLEMENTATION DETAILS

Generalities

1. CONAGUA and the Bank team have agreed to design the output-based disbursement window (Component 2C) as a pilot limited to a few utilities and a sub-set of the activities included in other windows. CONAGUA considers that the complexity of preparing an OBD scheme that involves three levels of Government as well as a multilateral financing institution can be better dealt with through a pilot that can be developed at its own pace and for which specific roles can be established and tried before any larger roll-out. This component – which builds on technical assistance provided by the Bank in past years - would be the first pure OBD program for CONAGUA and the first for the Bank in Mexico, even though prior experiences with OBD-like schemes exist.

2. Under the proposed OBD window, the project will reimburse the capital cost of investments, represented in unit reference costs, required by the participating WSSUs to deliver the agreed outputs. The OBD mechanism that will link disbursement from the Bank to the GoM to actual outputs will be directly replicated with a similar mechanism between the GoM and the participating WSSU, using the same indicators, unit reference costs and auditing mechanisms.

3. In order to limit the burden on CONAGUA during preparation while adhering to the Bank requirements for an OBD activity, both sides have agreed on a series of key principles and methodologies that will govern the pilot and are presented in the paragraphs below. However, the detailed instrumentation of the window is expected to be completed during the first six months of implementation and its specificities will be presented in a dedicated Operation Manual for the window. This Manual will contain the criteria for the selection of participating WSSUs, the list and description of eligible outputs per type of efficiency improvement, and the corresponding reference unit costs methodology, performance, and reporting indicators, in line with the principles described in the following paragraphs. Access to the disbursement category for the OBD window will be linked to the approval by the Bank of this Operation Manual.

Activities and Indicators

4. The activities financed under this window will cover all three efficiency improvement types under the project and will be paid for on the basis of the three indicators described below. In all three cases, disbursements will be made against actual outputs.

5. **Physical efficiency improvements.** Physical efficiency improvements include a wide range of activities aimed at reducing water losses (whether real or apparent) in the production and distribution system (refer to Annex 2 / description of Component 2B for a complete list of activities to be financed under this concept). These activities will all be paid on the basis of:

cubic meter of water saved per month [m3/month]

over a given baseline. Only WSSU with good water metering levels and data (at production, district and user levels), where good baselines data exist and a solid results monitoring program can be established, will be able to use this indicator.

6. **Energy efficiency improvements.** Energy efficiency improvements activities aim at improving the overall energy efficiency of the system, be it through more efficiency equipment or through optimization of operations of the system. These activities will be paid on the basis of:

kilowatt of electricity saved per cubic meter produced per month [kWh/m3/month]

over a given baseline. Monitoring of this indicator and related outputs will be relatively simple given that participating WSSU have statistics on volume of water produced, and receive bills from electricity companies that detail the energy consumption of their electromechanical equipment.

7. **Commercial efficiency improvements.** Commercial efficiency improvement activities seek to increase the billed revenue of participating WSSU, undertaking activities such as the re-classification of users in their customer database (for example when commercial users are wrongfully classified as residential) or the increase in user metering levels. These activities will be paid on the basis of:

additional cubic meters billed on the basis of metered volume [m3/month]

over a given baseline. Monitoring of this indicator and outputs achieved will be based on the data available in the utility's commercial system, which will allow for good quality baseline and outputs data.

8. Each of the sub-projects financed under this activity will have a duration defined by the specific program of activities, but incorporating a "sustainability" period (typically six months) that will allow to ensure not only that the activities were completed to satisfaction and allowed to provide the output on the basis of which the disbursement is being made, but also that this output corresponds to a sustainable efficiency improvement. This sustainability period will be linked to a portion of the reimbursement and subject to verification by the technical auditor.

Unit Reference Costs

9. Given the pilot nature of this window and the large variation in prices expected between different regions of the country and WSSU situations, CONAGUA and the Bank team have agreed that the unit reference costs will be defined individually for each participating WSSU on the basis of the following methodology:

1. The participating WSSUs will be asked to submit a proposed, detailed efficiency improvement program (whether physical, energy or commercial). This program of activities will include a detailed list of activities (based on the list of eligible activities under PROME) with cost estimate, as well as an efficiency improvement target defined in terms of the indicators mentioned previously. Technical assistance to prepare this efficiency improvement program will be available from the technical assistance window.
2. The efficiency improvement program presented by the WSSU will be reviewed by an independent consultant contracted under the project, who will focus especially on the economy and efficiency of the program and in particular its cost estimate and targets. For this review, the consultant will be able to draw on two independent sources of information: a detailed costs database maintained by CONAGUA for inputs going into

water investments, and the actual historical costs of similar efficiency improvement programs conducted under the previous PATME project.

3. Once the program has been validated by the independent consultant, the unit reference costs for this particular WSSU will be defined by CONAGUA on the basis of the program total cost and proposed target and subject to the Bank's no-objection.

10. **Example.** CONAGUA recently completed a comprehensive energy efficiency study for the WSSU in Tecamac (State of Mexico), which provides a concrete example of the application of the proposed methodology to define Unit Reference Costs.[25] ODAPAS, the utility in Tecamac, obtains its water mostly from groundwater and energy costs represent a significant burden on the company's financial situation. The study proposes a investment plan of a total of approximately US$73,000, which includes the replacement and/or improvement of pumps in 12 pumping stations, the optimization of the pumping schedule, and the creation of district metering areas in the distribution network (among other actions). If these actions are fully implemented, the study estimates that a total of approximately 32,000 MWh could be saved every year. As a result, the estimate unit reference cost for Tecamac WSSU would be 0.002 US$/kWh/year.

Financing Mechanism and Flow of Funds

11. Several options were evaluated during project preparation, and it was determined that the most feasible and meaningful financing mechanism for the OBD window would be to follow the same flow of funds as the classical investment window (Component 2B). Under this window, CONAGUA advances funds from its own budget to participating WSSUs, which in turn procure and supervise pre-agreed activities and document the use of funds to CONAGUA. CONAGUA in turn passes this documentation to the Financial Agent, which requests the independent technical audit of the reported results. The independent technical audit report is used by the Financial Agent to obtain reimbursement from the Bank. The amount reimbursed by the Bank is then passed on to the National Treasury. Refer to Annex 3 for more details on the flow of funds. The legal instruments between the parts will also be similar to those in the case of window 2B. The main difference will be related to the amount of transfers – which will be based on agreed unit reference costs and targets, and the form of documentation of funds, which will be based on an independent technical verification of outputs (see next paragraph) instead of actual expenditures receipts.

Outputs Auditing Mechanism

12. Both the baseline and the actual outputs achieved by the participating WSSU will be audited to ensure that the Bank disbursements are based on sound, independently verified outputs. CONAGUA and the Bank tentatively agreed that this independent technical audit will be conducted by a technical Consultant to be financed by the project. This Consultant will initially validate the baseline proposed by the participating WSSU using the utility's information system and a detailed revision of a sample of the information sources (district meters, power meters etc.). In addition, the Consultant will also conduct periodic revisions of the actual outputs claimed by the participating WSSU, using the same combination of utility information and

[25] Watergy (2010) *Informe de Proyecto "Recopilación y verificación de la información técnica y operativa de los equipos electromecánicos instalados en el Organismo Público Descentralizado para la Prestación de los Servicios de Agua Potable, Alcantarillado y Saneamiento del Municipio de (ODAPAS) Tecámac*" (Project Report on Technical and Operational Data Gathering and Verification of Electromechanical Equipment at WSSU of Tecámac).

revision of a sample of information sources. The audit reports generated by the Consultant will serve as the basis for the WSSU to document the use of the funds to CONAGUA, and for the GoM to obtain disbursements from the Bank under this window.

Targeted Utilities

13. Given its pilot nature, CONAGUA has decided that the OBD window will initially be limited to those utilities that participated in the PATME project and showed solid results. CONAGUA will approach the few utilities that fulfill these criteria once the OBD-window becomes effective to discuss their individual interest in participating in the pilot. Initially, CONAGUA expects that no more than 2-3 utilities will be participating. This initial number could increase at a later stage, once the feasibility and potential of the OBD approach has been demonstrated.

ANNEX 9: GLOSSARY OF TECHNICAL TERMS

1. *Efficiency*[26]*:* the Efficiency of urban water supply systems is defined by their capacity of collect, treat and distribute water from its natural source to the users, while maintain acceptable service standards (quantity and quality of water) at minimum cost. Thus, efficiency is related to four aspects: a) Engineering/Planning of Supply Systems, b) Commercialization of Water Supply Services, c) Demand side-management, and d) Institutional Development of Water Utilities. It is considered that a water supply system is no longer efficient when it cannot offer a quality service at low cost due to high levels of water losses and the lack of financial resources to improve the situation. The performance indicators used by CONAGUA to measure efficiency are:

- *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.
- *Energy Efficiency:* Energy efficiency is defined as providing permanent reductions in energy use while maintaining equal or greater output, whatever that output may be, such as a unit of production; quality of service, such as space heating; or the generation of electricity. It is generally expressed in kWh/m3, although CONAGUA also sometimes uses the relation between overall expenses of a utility, and its electric bill, to measure this indicator.

2. *Non Revenue Water (NRW):* Non-revenue water is the difference between the volumes of system input and billed authorized consumption. Non-revenue water includes not only the physical (real) losses and commercial (apparent) losses, but also the unbilled authorized consumption.

- *Physical losses* comprise leakage from all parts of the system and overflows at the utility's storage tanks. They are caused by poor operations and maintenance, the lack of active leakage control, and poor quality of underground assets.
- *Commercial losses* are caused by customer meter under registration, data-handling errors, and theft of water in various forms.
- *Unbilled authorized consumption* includes water used by the utility for operational purposes, water used for firefighting, and water provided for free to certain consumer groups.

3. *River Basin Agencies (RBA):* The River Basin Agencies (RBAs, *Organismos de Cuenca*) are conceived as specialized units of CONAGUA with technical and administrative autonomy to exercise the functions assigned to them by law. The National Water Law provides the RBAs sufficient independence and autonomy to manage the assets and resources allocated to them by CONAGUA. The RBAs are responsible for formulating regional policy, designing programs to

[26] CONAGUA and Mexico in general uses concepts and definitions that differ from generally accepted international practices such as those from the International Water Association (IWA). The definitions under this paragraph reflect the Mexican practices.

implement those policies, conducting studies to estimate the value of the resources generated within their boundaries (water user fees), recommending specific rates for water user fees as a result of those studies, and finally, operating the necessary mechanisms for collecting water user fees.

4. *Water Supply and Sanitation Utilities (WSSU):* the Water Supply and Sanitation Utilities (*organismos operadores*) are autonomous entities that provide water supply and sanitation services at municipal level. The WSSU can take different forms (state-owned, deconcentrated units, mixed capital companies), although they are generally closely linked with the municipal administration.

5. *District Metering Areas:* A DMA is a defined as a discrete area of the distribution system usually created by the closure of valves or complete disconnection of pipe work in which the quantities of water entering and leaving are metered. The subsequent analysis of flow and pressure, especially at night when a high proportion of users are inactive, enables leakage specialists to calculate the level of leaks in the district.

6. *Active leakage control:* A formal regime of regular (periodic) or continuous monitoring of the network that detects and repairs unreported bursts; includes regular surveying (sounding, waste metering) and/or leakage monitoring. Does not include repair of reported bursts.

7. *Rehabilitation:* any physical intervention that extends the life of the system and/or improves its structural, hydraulic and/or water quality performance and involves changing its condition or specification. In general, it refers to the system or sector and not to single pipes or other system elements. Structural rehabilitation includes replacement and renovation. Hydraulic rehabilitation includes replacement, reinforcement and, occasionally, renovation. Water quality rehabilitation includes replacement and renovation.

8. *Refurbishment:* all methods for restoring the existing assets in order to achieve the requisite performance. Refurbishment is similar to renovation and is used mainly for pumps and other equipment.