

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PLURINATIONAL STATE OF BOLIVIA

**WATER AND SEWERAGE PROGRAM IN PERIURBAN AREAS,
PHASE I**

(BO-L1034) (BO-X1004)

LOAN PROPOSAL

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REQUIRED	
A. Annual work plan	
	http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2085652
B. Monitoring and evaluation arrangements	
	http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2085653
C. Procurement plan	
	http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2086119
D. Environmental and Social Management Report (ESMR)	
	http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2066613
OPTIONAL	
E. Operating Regulations	
	http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2085656
F. Technical analyses	
	http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2086001
G. Socioeconomic analysis	
	http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2085957

ABBREVIATIONS

AAPS	Autoridad de Fiscalización y Control Social de Agua Potable y Saneamiento Básico [Water and Basic Sanitation Inspection and Social Oversight Authority] — the authority, attached to the MMAA, that took on regulatory functions when the SISAB was eliminated.
AECID	Agencia Española de Cooperación Internacional para el Desarrollo [Spanish Agency for International Development Cooperation]
AWP	Annual work plan
COOPLAN	Cooperativa de Servicios Públicos de Agua Potable y Alcantarillado Plan Tres Mil Ltda. (COOPLAN Ltda.)
EMAGUA	Entidad Ejecutora de Medio Ambiente y Agua [Environment and Water Executing Agency]
EPSA	Entidad Prestadora de Servicios de Agua [water service operator] — the term used in the law to refer to water and sanitation operators. This term is not generally used in this document to prevent confusion with EPSAS.
EPSAS	Empresa Pública Social de Agua y Saneamiento S.A. — the leading supplier of water supply and sewerage services in La Paz and El Alto.
FECASALC	Fondo Español de Cooperación para Agua y Saneamiento en América Latina y el Caribe [Spanish Cooperation Fund for Water and Sanitation in Latin America and the Caribbean]
GtZ	Gesellschaft für Technische Zusammenarbeit — a German government institution that provides technical assistance,
ICA	International cooperation agency — these include: the Bank; the bilateral development agencies of the Governments of Canada and Sweden, KfW and GtZ, and the European Commission.
KfW	Kreditanstalt für Wiederaufbau — the German government's development bank
MICSA	Mecanismo de Inversión para Cobertura en el Sector de Agua Potable y Saneamiento [investment mechanism for coverage in the water and sanitation sector]
MMAA	Ministry of the Environment and Water
OFCAS	Oficina del Fondo de Cooperación para Agua y Saneamiento [Office of the Water and Sanitation Cooperation Fund]
O&M	Operation and maintenance
OTC	Oficina Técnica de Cooperación de la AECID [AECID Technical Cooperation Office]
PCU	Program coordination unit — attached to the MMAA and responsible for program execution; subject to institutional evaluation, could be transferred to EMAGUA.
PNSB	Plan Nacional de Saneamiento Básico [National basic sanitation plan] — part of the government's national development plan

SAGUAPAC	Cooperativa de Servicios Públicos de Santa Cruz, Ltda. [Santa Cruz public utilities cooperative] — the leading water supply and sewerage services operator in Santa Cruz.
SEMAPA	Servicio Municipal de Agua Potable y Alcantarillado [Municipal Water Supply and Sewerage Service]
SENASBA	Servicio Nacional para la Sostenibilidad de Servicios en Saneamiento Básico [National Basic Sanitation Sustainability Service]
SIDA	Swedish International Development Cooperation Agency
SIGMA	Sistema Integral de Gestión Administrativa [integrated administrative management system] — to be used to formulate, execute, and oversee the budget.
SISAB	Superintendencia de Saneamiento Básico [Basic Sanitation Superintendency] — the autonomous body created as regulator; eliminated and replaced by the AAPS.
VAPSB	Viceministerio de Agua Potable y Saneamiento [Office of the Deputy Minister for Water and Sanitation]

PROJECT SUMMARY

PLURINATIONAL STATE OF BOLIVIA

WATER AND SEWERAGE PROGRAM IN PERIURBAN AREAS, PHASE I

(BO-L1034) (BO-X1004)

Financial Terms and Conditions						
Borrower: Plurinational State of Bolivia Executing agency: Ministry of the Environment and Water (MMAA)			Amortization period:	****	30 years	40 years
			Grace period:	****	6 years	40 years
			Disbursement period:	6 years	6 years	6 years
Source (US\$)	Phase I	Phase II	Interest rate:	N/A	Libor	0.25%
IDB (Ordinary Capital)	14,000,000	14,000,000	Inspection and supervision fee:	N/A	*	N/A
IDB (FSO)	6,000,000	6,000,000	Credit fee:	N/A	*	N/A
FECASALC**	80,000,000	40,000,000	Currency:	Dollars	***	Dollar
Other cofinancing	0	40,000,000				
Total	100,000,000	100,000,000				
Project at a glance						
<p>Project objective/description:</p> <p>The Program's general objective is to improve health in periurban communities and other cities. Its specific objective is to increase access to water supply and sewerage services in the periurban areas of El Alto, La Paz, Cochabamba, Santa Cruz, and Tarija and other cities. The target is to provide upgraded water supply and sewerage services for 500,000 inhabitants. Phase I of the Program will consist of four components. Component 1, Water and sanitation projects, will finance the construction, supervision, inspection, trialing, and activation of water and sewerage projects. Component 2, Preinvestment studies and metropolitan master plans, will finance: (i) engineering, financial, economic, institutional, and environmental designs for the projects to be included in the Program; and (ii) metropolitan water and sanitation master plans for La Paz, El Alto, Santa Cruz, Cochabamba, and Tarija. Component 3, Institutional strengthening, will finance: (i) technical assistance for the institutional strengthening of water supply and sewerage operators in metropolitan areas; and (ii) institutional assistance for governmental authorities, including the MMAA, the Water and Basic Sanitation Inspection and Social Oversight Authority (AAPS), and the National Basic Sanitation Sustainability Service (SENASBA). Component 4, Program administration, will cover Program implementation costs: (i) the establishment and operation of a full-time program coordination unit (PCU) attached to the MMAA; (ii) the hiring of a consulting firm to perform the technical-economic evaluations of projects; (iii) the hiring of procurement and supervision advisors to support the PCU in executing individual projects; and (iv) Program audit, evaluation, and monitoring activities.</p> <p>The Program is consistent with the "100 Cities" component of the Bank's Water and Sanitation Initiative (document GN-2446-1). It will also contribute to the purpose of structuring financing to solve problems of access to water supply and sewerage services in five Bolivian cities: La Paz, El Alto, Cochabamba, Santa Cruz, and Tarija.</p> <p>Special contractual clauses:</p> <p>As agreed with the Bank and the Government of Spain, as conditions precedent to the first disbursement, the MMAA will provide evidence that: (i) the PCU has been set up and the Coordinator and specialists of the PCU team have been appointed (paragraph 3.1); (ii) the selected consulting firms have been invited to submit proposals to provide Program management support services (paragraph 3.1); and (iii) the Operating Regulations have entered into force under terms previously approved by the Bank (paragraph 3.5).</p> <p>Exceptions to Bank policies: None</p> <p>Other Financial Conditions: None</p>						
<p>Project qualifies as: SEQ [X] PTI [X] Sector [] Geographic [X] Headcount [X]</p> <p>Procurement: The procurement of goods, works, and consulting services will be governed by the Bank's policies contained in documents GN-2349-7 and GN-2350-7 (paragraph 3.7).</p>						

- * The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with the applicable provisions of the Bank's policy on lending rate methodology for Ordinary Capital loans. In no case will the credit fee exceed 0.75% or the inspection and supervision fee exceed, in a given six-month period, the amount that would result from applying 1% to the loan amount divided by the number of six-month periods included in the original disbursement period.
- ** Spanish Cooperation Fund for Water and Sanitation in Latin America and the Caribbean. The agreement between the Government of Spain and the IDB (Framework Document for the Establishment of the Spanish Cooperation Fund for Water and Sanitation in Latin America and the Caribbean) was signed on 24 July 2009. The resources allocated in the context of the fund to finance the activities indicated in this Program are subject to approval by the Government of Spain.
- *** United States dollars from the Single Currency Facility.
- **** Nonreimbursable

I. DESCRIPTION AND RESULTS MONITORING

A. Background

- 1.1 According to the 2001 census, Bolivia has a population of 8.3 million, of which 5.1 million live in urban areas and 3.2 million in rural areas. The delivery of water supply and sanitation services in the country improved significantly between 1990 and 2006, according to estimates reported by the WHO/UNICEF Joint Monitoring Program. Water supply coverage in the urban sector rose from 91% to 96% and in the rural sector, from 49% to 69%. In terms of access to sanitation, coverage over that period increased from 66% to 76% in the urban sector and from 17% to 25% in the rural sector. Despite the efforts undertaken, water and sanitation coverage is among the lowest in the Americas. Service delivery in the urban sector faces the following main challenges: increase coverage, strengthen investment planning, and improve service providers' operational efficiency.
- 1.2 The Water and Sanitation Services Law (Law 2066 of April 2000) specified different and separate organizations for the following functions: (i) sector policymaking and planning; (ii) regulation; and (iii) service delivery. The Office of the Deputy Minister for Basic Services, within the Ministry of Public Works (whose functions were later assumed by the Ministry of Water and subsequently by the Ministry of Environment and Water), was responsible for setting sector policy, planning investments, and arranging for international financing. The Basic Sanitation Superintendency (SISAB) was given responsibility for regulating services, with powers to protect consumers, approve rates, issue concessions and licenses, and keep a registry of operators. Although Law 2066 is still partly in force, the sector's institutional structure has been modified to make it compatible with the current government's policy.
- 1.3 The government introduced amendments through a number of legal instruments, as follows: (i) Lead agency: Supreme Decree (DS) 29894, of 7 February 2009, approves the new structure of the executive arm and creates the new Ministry of the Environment and Water (MMAA). The new ministry takes over the powers of the Ministry of Water, while the Office of the Deputy Minister for Water and Sanitation (VAPSB) assumes the role previously played by the Office of the Deputy Minister for Basic Services. (ii) Regulation: DS 29894 abolished the sector regulatory superintendencies, including SISAB, while DS 0071, of 9 April 2009, created authorities with regulatory functions, attached to the line ministries of the respective sectors, including the Water and Basic Sanitation Inspection and Social Oversight Authority (AAPS), attached to the MMAA, which plays the same role as SISAB but does not issue concessions; (iii) Sector financing and project execution: DS 29751, of 22 October 2008, created the investment mechanism for coverage in the water and sanitation sector (MICSA), the rules of which provide for channeling funding for infrastructure construction. DS 0163, of 10 June 2009, created the Environment and Water Executing Agency (EMAGUA), an autonomous public entity for the implementation, monitoring, and evaluation of MMAA programs and projects; and (iv) Technical assistance: DS 29741, of 15 October 2008, created the

National Basic Sanitation Sustainability Service (SENASBA), to channel funding for technical assistance to the various operators.

- 1.4 Water and sewerage operators¹ can take the form of public or municipal firms, cooperatives, or water boards. Under Public Credit Law 2649 of April 2004, operators are considered eligible to borrow government funds. The institutional model for urban operators is different across the various areas of the country. Service delivery in Bolivia's main urban centers is the responsibility of: the Empresa Pública Social de Agua y Saneamiento S.A. (EPSAS) in La Paz, the Cooperativa de Servicios Públicos de Santa Cruz (SAGUAPAC), which provides services in the urban core, followed by COOPLAN, COOPAGUAS, and other cooperatives in Santa Cruz, and the Servicio Municipal de Agua Potable y Alcantarillado (SEMAPA) and small-scale water boards, based in the communities themselves in Cochabamba. Other large urban centers include Oruro, Potosí, Sucre, Tarija, Pando, and Beni.

B. The government's sector policy

- 1.5 The government's sector policy is set out in the National Basic Sanitation Plan (PNSB) published as Water Ministry Resolution 101/2008, of 22 October 2008. It recognizes water service access as a universal right; rejects concessions and privatization; makes the State responsible for service provision; stipulates that services must fulfill criteria of universality, responsibility, accessibility, continuity, quality, efficiency, fair and necessary charges, with social participation and oversight; recognizes cultural and ancestral uses; and requires the State and the population to conserve, protect, and use water resources sustainably. The PNSB recognizes the need to provide sustainable services in urban areas, indicating that investments of over US\$700 million are needed in urban areas to achieve the Millennium Development Goals by 2015. This amount will mean increasing access to water supply and sanitation for 1.4 million and 1.7 million inhabitants, respectively.
- 1.6 The MICSA contains important aspects of the sector policy: it lays the foundations for aligning international cooperation with sector policies; and it creates a sector credit line funded by various donors, to be used under agreed rules. Allocation of the sector credit line resources will give priority based on poverty, environmental, urban growth, and development potential criteria.
- 1.7 **Spanish Cooperation strategy.** Bolivia has been given priority by the Cooperation Agency, which includes the water supply and sanitation sector as part of its strategy of cooperation with Bolivia. In addition, the Government of Spain, through the Office of the Water and Sanitation Cooperation Fund (OFCAS) in Madrid, and the Bank agreed on terms and conditions for the establishment of the Spanish Cooperation Fund for Water and Sanitation in Latin America and the Caribbean

¹ The law defines an "operator" as a water and sanitation delivery entity (EPSA). In this document, the term EPSA will not be used, to avoid confusing operators in general with the specific operator that provides services in La Paz and El Alto (EPSAS).

(FECASALC). On 24 July 2009, the Government of Spain and the Bank signed the “Technical Framework Document for the establishment of FECASALC”. The objective of this fund is to contribute to the financing of projects, programs, and activities that will help speed up the individual and collective economic and social development process in the member countries of the Bank in Latin America and the Caribbean in all aspects related to water supply and sanitation, in order to help those countries benefit by achieving this target and the Millennium Development Goals in this area. The fund’s specific objectives are to: help expand access to water supply while ensuring the sustainable use of natural resources; help expand access to basic sanitation services by promoting the sustainable use of natural resources; promote comprehensive water resource management; and strengthen water sector governance by promoting transparent and participatory management of the resource.

C. Conceptual overview of the Program

- 1.8 The Program is designed to be compatible with the PNSB and will make a significant contribution to the objective of achieving universal coverage in water and sanitation services. Its concentration on periurban areas will benefit the poor particularly. It will also contribute towards achievement of the Millennium Development Goals. At the government’s request, the Program will cover the periurban areas of three metropolitan regions (La Paz/El Alto, Cochabamba, and Santa Cruz) and the city of Tarija.
- 1.9 The Program is designed as a broad-scope strategic intervention, structured as a multiphase program for the following reasons: (i) Although some projects are ready to be implemented, others are at the feasibility level or are just being conceived. This structure will make it possible to prepare metropolitan master plans for identifying future projects. (ii) Infrastructure growth will be coupled with the strengthening of operators’ performance in pursuit of long-term efficiency and transparency. This will allow for the construction of works that are functionally independent from each other, while fulfillment of efficiency and transparency targets defined in the results framework is monitored; (iii) Several international cooperation agencies (ICAs) participated in the conceptual design stage of the Program and have expressed interest in cofinancing it. The MICSA will be designed in detail and the rules for second phase financing will be agreed upon by various entities. Phase I will be a multiple-works investment operation of up to US\$100 million, for which the government has applied for nonreimbursable funding from FECASALC in the amount of up to US\$80 million and a loan from the Bank of up to US\$20 million. Phase II includes projects similar to those to be funded in Phase I. Some of the projects will be designed during Phase I to ensure continuous Program execution, while others will be defined by the master plans to ensure that the overall consistency of the Program is maintained. Phase II will be financed through a sector-wide approach (SWAp) operation and the government is considering requesting the following: a loan from the Bank of up to US\$20 million;

nonreimbursable funding from FECASALC of up to US\$40 million; and additional funding of up to US\$40 million from other ICAs.

- 1.10 The Program is intended to finance works construction to address the main problem of lack of infrastructure. It also provides for technical assistance and institutional strengthening to resolve or mitigate factors that contribute to the problem: (i) Factors associated with operators: inadequate operational and financial procedures; governance structures that allow interference by external groups; and service fragmentation that results in diseconomies of scale; (ii) Factors associated with public perception: lack of awareness-raising procedures; lack of public information dissemination; and (iii) Factors relating to strategic planning: unplanned urban growth; lack of specific planning for periurban areas at the metropolitan level; lack of development and protection of new water sources at the metropolitan level. The Bank has reviewed a sample of the first projects to be executed under the Program and analyzed their technical, environmental, socioeconomic, institutional, and financial viability.
- 1.11 Tripartite consultation. The Program has been prepared through close cooperation between the MMAA, the Technical Cooperation Office (OTC) of the Spanish Agency for International Development Cooperation (AECID), and the Bank, in accordance with the country's policies and those of AECID and the Bank.
- 1.12 The Program qualifies as a poverty-targeted investment and a social-equity-enhancing project (PTI and SEQ, respectively) as defined by the Bank. The target population is located on the edges of urban areas where over 50% of the inhabitants are living in poverty or extreme poverty. Women will benefit most from the Program, since it is they who have to find solutions when services are deficient. By tradition and in practice, women are widely represented in public consultations and participate as directors, managers, and employees of the operators.
- 1.13 The Bank's Water and Sanitation Initiative. The Program is being prepared in accordance with the "100 cities" component of the Bank's Water and Sanitation Initiative (document GN-2446-1). The Program will contribute to the purpose of structuring financing, with resources from the Bank and other ICAs, to solve problems of access to water service in five cities: La Paz, El Alto, Cochabamba, Santa Cruz, and Tarija.

D. Program objectives and components

- 1.14 The Program's general objective is to help improve health in periurban communities and other cities. Its specific objective is to expand access to water supply and sewerage services in the periurban areas of El Alto, La Paz, Cochabamba, Santa Cruz, Tarija, and other cities. The target, which will be used to measure the success of Program implementation, is to provide improved water supply and sewerage services to 500,000 inhabitants in those areas. Phase I of the Program will consist of four components.

- 1.15 **Component 1. Water and sanitation projects** (US\$82.8 million). This component will finance the construction, reconditioning, expansion, supervision, inspection, trialing, and activation of water supply and sewerage projects, including: (i) pumping stations, storage tanks, and water supply networks; (ii) wastewater collection networks and pumping stations; (iii) reservoirs and extraction works; (iv) water source protection works; (v) water and wastewater treatment plants; (vi) household and in-house connections; (vii) environmental impact and climate change mitigation works; and (viii) community development for each project.
- 1.16 **Component 2. Preinvestment studies and metropolitan master plans** (US\$7.1 million). The component will finance: (a) complementarity of feasibility assessments and the project designs in the MMAA database; and (b) preparation of metropolitan master plans for the development and protection of water sources and wastewater receiving bodies, up to the technical-economic feasibility level, for the metropolitan regions of La Paz, El Alto, Santa Cruz, Cochabamba, and Tarija.
- 1.17 **Component 3. Institutional strengthening** (US\$4.4 million). Two areas will be financed: (a) technical assistance for operators to: (i) solve institutional problems among the Program's beneficiaries; and (ii) improve their administrative, operational, and financial performance. (b) institutional assistance for the central, regional, and local authorities, with strengthening for the MMAA, AAPS, and SENASBA.
- 1.18 **Component 4. Program administration** (US\$5.7 million). This component will cover implementation costs: (i) establishment and operation of the Program Coordination Unit (PCU); (ii) hiring of a consulting firm to support Program management; (iii) hiring of procurement and supervision advisors to support the PCU; (iv) Program audit, evaluation, and monitoring activities; (v) Program administration costs; and (vi) Program dissemination.

E. Phase I costs and financing

- 1.19 The total cost of Phase I is estimated at US\$100 million (see paragraph 1.9), distributed by investment category and funding source as shown in Table 1-3:

Table 1-3: Costs and financing (US\$ million)

Investment category	IDB	FECASALC	Total	%
Component 1. Water and sanitation projects	13.8	69.0	82.8	82.8
Component 2. Preinvestment studies and master plans	2.7	4.4	7.1	7.1
Component 3. Institutional strengthening	2.0	2.4	4.4	4.4
Component 4. Program administration	1.5	4.2	5.7	5.7
TOTAL	20.0	80.0	100.0	100

F. Results indicators

- 1.20 Phase I results framework. Progress in implementing Phase I of the Program will be measured in terms of the main milestones, outputs, and outcomes included in the results framework (see Annex II).
- 1.21 Milestones for the approval of Phase II. Preparation of Phase II may begin when the following milestones have been attained: (i) at least 50% of Phase I resources have been disbursed and 75% committed; (ii) the COOPLAN water supply and sewerage project in Santa Cruz is operational; (iii) two of the metropolitan master plans have been adopted by the authorities; (iv) 66,000 inhabitants are receiving improved water supply and sewerage services; and (v) a formal evaluation shows fulfillment of the loan contract conditions.

II. FINANCING STRUCTURE AND RISKS

A. Financing structure

- 2.1 Phase I will be financed through an investment loan from the Bank, in the form of a global multiple-works loan, and through investment and nonreimbursable technical assistance provided by FECASALC. The resources provided through this Fund will be subject to prior approval by the Government of Spain. The borrower and beneficiary will be the Plurinational State of Bolivia, and the funds from both sources will be transferred to the MMAA for execution through a subsidiary agreement setting out the nonreimbursable transfer of the resources and the Program's execution conditions. Table 2-1 sets out the Program's disbursement schedule.

Table 2-1: Disbursement schedule (US\$ million)

Year	1	2	3	4	5	6	TOTAL	%
IDB	1.5	3.9	4.1	3.5	3.5	3.5	20.0	20
FECASALC	16.3	14.2	12.4	12.4	12.5	12.2	80.0	80
TOTAL	17.8	18.1	16.5	15.9	16.0	15.7	100.0	100

Environmental and social safeguards

- 2.2 The projects to be funded by the Program will have a positive net social and environmental impact, since they will improve the quality of life of beneficiaries and the environment. By increasing service coverage, the Program will help eliminate street pollution resulting from wastewater discharge, waterborne diseases, and social conflicts caused by water shortages.
- 2.3 The Environmental and Social Safeguards Group reviewed the project profile on 7 March 2008. The project team has classified the Program as a category B operation, under the Bank's Environment and Social Safeguards Policy. The environmental analysis undertaken recommends that the PCU include a full-time

water and sanitation specialist with knowledge of environmental and social management and a community development specialist, for the Program's environmental management. In addition, the environmental analysis identifies areas to be included in the Operating Regulations, such as: (i) compliance with national environmental laws and the Bank's policies and safeguards; (ii) eligibility criteria for individual projects; (iii) environmental requirements for project design; (iv) the obtaining of environmental licenses and permits; (v) environmental contents of the works bidding documents; (vi) processes for oversight and inspection of the implementation of individual projects; and (vii) citizen consultation and participation mechanisms.

- 2.4 The most important environmental aspects of the Program are: (i) water extraction to supply periurban areas; and (ii) safe wastewater disposal. To address the first point, the Program has been designed with a long-term perspective, to ensure the sustainable use and protection of water sources. To deal with the second issue, the Operating Regulations will stipulate that no individual water supply project will be funded unless it provides for safe disposal of wastewater, including treatment where necessary.
- 2.5 The construction phase of the projects will cause short-term local impacts, such as noise, dust, construction debris, and traffic congestion. These impacts will be mitigated through commonly used measures that will be specified in the construction contracts. None of the projects seem to require population resettlement. If, during Program implementation, it becomes clear that resettlement or expropriation is needed, the Bank's policy OP-710 and national legislation will be complied with.
- 2.6 Law 1333 and its regulations govern environmental management and require each project to have an environmental license, for which projects of greater impact undergo an environmental impact assessment. An analysis of a sample shows that most projects will only require an environmental mitigation report and an environmental management plan. Once the evaluation process has been completed, the departmental or municipal government issues the environmental license, after which works construction can begin. The Operating Regulations will include all environmental licensing processes, pursuant to national legislation and the Bank's policies and procedures.
- 2.7 The Program will incorporate procedures that will explicitly require formal consultation with stakeholders during the environmental impact assessment of individual projects. During the design of the operation, public hearings were held in the cities of La Paz, El Alto, Cochabamba, and Santa Cruz, in which the Program and specific projects to be implemented in those cities were presented.

B. Special considerations and risks

- 2.8 **Analysis of engineering matters.** A sample of water supply, sewerage, and wastewater treatment projects located in El Alto and Santa Cruz de la Sierra was analyzed. These all have final designs and represent a stage of broader programs

currently under execution by the service providers—EPSAS and COOPLAN, respectively—in those cities. The project sample consists of (i) two water supply projects: the El Alto District 7 Central Section and Phase 1 of the COOPLAN system, or Plan 3000; and (ii) three sewerage projects: El Alto District 7, which includes three independent subprojects (Central Zone, Rigoberto Paredes, and Franz Tamayo), El Alto District 8, and Phase 1 of COOPLAN. The Bank's analysis indicates that the proposed works are feasible, they have been developed from an analysis of various alternatives, and their costs have been updated on the basis of real unit costs on the domestic and international markets. It was decided that the El Alto projects would be implemented in stages, with the first stage covering more densely populated areas and execution of the second stage linked to the operator's attainment of operational, commercial, financial, and institutional efficiency targets. The projects in Santa Cruz de la Sierra are already at the first stage out of five, and include construction of a wastewater treatment plant, the technical and operational evaluation of which will be deepened through technical cooperation ATN/OC-11640-BO. Electronic link F provides details on each of these projects.

- 2.9 **Socioeconomic evaluation.** In the sample's water supply projects, the without-project situation involves families that do not have service with a household connection (El Alto), or have poor quality service with rationing (COOPLAN), involving an improvised network with many leaks and high maintenance costs. The benefits are resource savings (water cartage or purchase from tankers in El Alto and savings on maintenance in COOPLAN) and an increase in consumption in both cases. These benefits were valued using questionnaires and the demand curve for water in each city. The El Alto District 7 Central Section project is a comprehensive water and sanitation project and was therefore evaluated as a single project. The demand used for El Alto includes the benefits of having this service.
- 2.10 In the sewerage projects analyzed, the current wastewater disposal system either uses latrines (75%) or no solution of any kind (25%). The greywater from individual wastewater disposal systems is discharged into the public thoroughfares, damaging the environment and health of area residents. The public and private benefits stemming from the construction of wastewater collection and disposal systems are as follows. The private benefit involves an increase in well-being arising from an improvement of the environment of each home and the population's health. The public benefits relate to an improvement and conservation of the environment located in the project area. The methodology used to estimate the direct benefits of the system involved valuation of the willingness to pay for the increase in water consumption and of medical expenses (paid by the government) to cure diseases caused by the existence of excrement in the public thoroughfares.
- 2.11 The analysis, which used efficiency prices, a 20-year horizon, and a discount rate of 12%, found that the COOPLAN water project and the comprehensive El Alto District 7 Project are viable, with returns of between 12.5% and 15%. Among the sewerage projects, the COOPLAN and Rigoberto Paredes projects are viable, with returns of 22% and 13%, respectively, but the Franz Tamayo and El Alto District 8

- projects are not, since they generate a return of under 5%. The differences in the sewerage project results are mainly due to two factors: (i) population density in relation to length of piping; and (ii) the production of wastewater per person is twice as high in COOPLAN (140 l/person/day) than in El Alto (70 l/person/day).
- 2.12 A sensitivity and economic risk analysis of the viable projects found that the results are sensitive to willingness to pay (proxy for the benefit) and investment costs. As a result, the comprehensive project, the water supply project, and the Rigoberto sewerage project have a 60% chance of being viable. The COOPLAN sewerage project is more than 90% likely to be viable.
- 2.13 **Ability to pay.** The analysis found that 10% of the families in El Alto would be spending over 5% of family income to pay the water bill, for a consumption of less than 10 m³/month. This means they would not have the ability to pay their bill in full. A study will be conducted during project execution to identify the best way to help families that are unable to pay. The methodology to be used could be a targeted cross-subsidy, or some other solution suited to Bolivian society.
- 2.14 **Institutional aspects.** The Program's institutional viability was evaluated on the basis of: (a) the institutional capacity of EMAGUA, a recently created agency that has been given powers to serve as executing agency and has the necessary autonomy within its jurisdiction, and the executive and technical staff needed to fulfill its functions. EMAGUA will be strengthened by means of the formation of a professional team contracted with resources from ATN/OC-11640-BO and through the financing of the PCU (see paragraph 3.1), which is functionally accountable to the Bank for contracting processes and for institutional diagnostic studies of the operators; and (b) the institutional capacity of the beneficiary entities (EPSAS and COOPLAN) to operate and maintain the infrastructure funded by the Program. This evaluation of the sample projects was performed through an analysis of institutional capacity. EPSAS currently has the capacity to operate and maintain that infrastructure. COOPLAN will strengthen its organizational structure and technical capacity during project execution to ensure competent operation and maintenance. The institutional strengthening component for each project includes a matrix of performance indicators and management targets. It was agreed that the diagnostic assessment of institutional strengthening for future beneficiaries would use the Institutional Capacity Assessment System (ICAS), and that the institutional strengthening component would include areas identified by the ICAS or others to be agreed upon with the PCU. The diagnostic assessment will be conducted during the first stage of the project cycle, followed by preparation of the necessary terms of reference for the institutional strengthening indicated.
- 2.15 **Financial considerations.** The financial analysis of the sample projects was based on audited financial statements at December 2008. EPSAS uses its own funds to cover operation and maintenance (O&M) costs and depreciation; its net internal cash flow enables it to finance over 30% of its investment plan. COOPLAN is currently unable to finance O&M costs and depreciation out of its own revenue. Nonetheless, a new rate and a new rate structure entered into force in July 2009,

which will increase its operating income by up to 20%, thereby enabling it to cover the aforementioned costs. In addition, with this increase, net internal cash flow will be able to cover up to 20% of its investment plan. The PCU will monitor these indicators.

- 2.16 During Program execution, rate and subsidy studies will be undertaken for the purpose of recommending adjustments to current rate and user classification structures and to rate levels, for the purpose of enhancing the financial sustainability of the companies and strengthening their invoicing and collection operations. These studies will encompass a review of invoicing, collection, accounting, budget, and cash flow systems; they will also include a diagnostic assessment, recommendations for adjustments, and preparation of an implementation plan and budget. The cooperation agreements or their addenda signed by the operators and the MMAA (see paragraph 3.3) will include financial indicators as a contractual condition for monitoring efficiency improvements in service delivery. Those agreements will include a contractual condition whereby, for financing second-stage works in each project, operating income must be sufficient to cover operation, maintenance, and depreciation costs; otherwise, the operator will undertake to finance the difference out of internal funds, or will take the steps needed to guarantee timely financing.

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Implementation arrangements

- 3.1 **Program coordination unit (PCU).** The borrower will be the Plurinational State of Bolivia, and the executing agency will be the Ministry of Environment and Water, with responsibility for administering the proceeds of the Bank loan and the nonreimbursable funding from FECASALC. As part of the Program implementation arrangements, the MMAA will set up a program coordination unit (PCU) to serve as executing unit, and will appoint a coordinator accountable to the Bank for effective implementation. The coordinator will be supported by a technical team responsible for managing the project cycle, including the contracting of works. The team will consist of a water and sanitation engineering specialist, an environmental management specialist, a community development and institutional strengthening specialist, an economic-financial specialist, a procurement specialist, and an administrator responsible for the Program's financial governance, and the corresponding support team. PCU activities will be supported by a consulting firm for program management support, which will undertake the technical and economic evaluation of projects. *As a condition precedent to the first disbursement, the MMAA will provide evidence to the Bank and the donor that the PCU has been set up, that the coordinator and team of specialists have been appointed, and that a group of consulting firms has been invited to submit proposals to provide program management support.*

- 3.2 The PCU will be attached to the MMAA. EMAGUA (see paragraph 1.3) could eventually become the Program's executing agency, after an institutional evaluation is performed showing that it has sufficient legal, institutional, and fiduciary capacity to fulfill that role. Once this requirement has been fulfilled, the borrower may submit a request to the Bank for a change in executing agency.
- 3.3 **Project cycle.** Each project will pass through five stages: (i) Project presentation. The operator in question will submit its project to the PCU, which will review it for eligibility and process it for formal inclusion in the project portfolio for MMAA approval. This stage ends with the signing of a cooperation agreement, or equivalent legal document, between the operator and the MMAA. (ii) Project formulation in stages. The PCU and the respective operator agree on project execution in stages of technical assistance for institutional strengthening and works construction. An addendum to the cooperation agreement is signed, specifying the following: operational, commercial, financial, and institutional efficiency targets; and the operator's commitment to adequately operate and maintain the infrastructure to be financed; (iii) Tendering of works, goods, and services. The PCU will be responsible for implementing procurement processes and payment of the respective certificates. Each stage of a project culminates in the award of the corresponding works, goods, or service contracts; (iv) Implementation and supervision. The PCU will supervise the institutional strengthening and works construction stage(s). (v) Transfer. The PCU will transfer the assets to the operator for appropriate operation and maintenance. This stage concludes with the signing of a Transfer and Operation Agreement, or equivalent document, between the operator and the MMAA.
- 3.4 **Prioritization and eligibility criteria.** Projects will be prioritized on the basis of the rules and conditions set out in the MICSA (see paragraphs 1.3 and 1.6). The criteria under which an operator will be eligible to submit a project for Program funding will be of an institutional nature, such as the legal capacity to provide water supply and sanitation services and regular status vis-à-vis the AAPS. Eligibility criteria for the financing of individual projects will be linked to project viability in environmental, technical, and socioeconomic terms, and to operators' institutional and financial capacity to operate and maintain projects sustainably after they have been constructed. Project prioritization rules and eligibility criteria will be set out in detail in the Operating Regulations.
- 3.5 **Operating Regulations.** The MMAA is preparing the Operating Regulations, which will include: (i) a detailed description of the implementation arrangements, and an organization chart; (ii) the roles of the various Program actors, including the PCU, MMAA, AAPS, SENASBA, and the operators; (iii) the process flow chart of activities to be undertaken by the PCU; (iv) processes of planning, monitoring, and control of Program execution; (v) the results framework; (vi) eligibility criteria for operators to submit projects, and criteria for the projects to be eligible for financing; (vii) rules for prioritizing projects based on the MICSA; (viii) guidelines for project preparation and evaluation criteria, especially the methodology for calculating

benefits, which will need to be taken into account in the economic evaluation of sewerage projects; (ix) the methodology for preparing the operators' financial projections; (x) processes for tendering, contracting, and supervising services, works, and goods, including the documents to be used in procurement processes; (xi) description of the disbursement process and coverage of expenses; and (xii) guidelines for environmental assessment of the proposed projects. The Operating Regulations will also contain the rules and instruments required by the Bank for its administration of the financing, including routine and special reports. A preliminary draft of the Operating Regulations can be accessed through electronic link E. *As a condition precedent to the first disbursement of the Program financing, the Operating Regulations will have entered into force under the terms previously agreed upon by the OTC and the Bank.*

- 3.6 **Coordination with the OTC.** The Bank will coordinate and consult with the OTC on aspects related to implementation of the project as established in the Technical Framework Document and the Operating Regulations of FECASALC (document OP-207, in Spanish). This Program's Operating Regulations will specify the process of participation in the execution of the project by the Government of Spain through the OTC.

- 3.7 **Procurement.** The procurement of works, goods, and consulting services, financed in whole or in part with the loan proceeds, will be undertaken in accordance with the Bank's policies set out in documents GN-2349-7 and GN-2350-7. Based on analyses of the executing agency's institutional capacity, threshold amounts are recommended for cases requiring international competitive bidding (ICB) (see Box 3-1). Project procurements will be reviewed ex post, except for those using ICB procedures. The frequency of ex post review will be every six months at most, and the capacity of the executing agency will be reviewed annually, drawing on the opinion of the procurement specialist at the Bank's Country Office. All procurements to be undertaken in a given period must be included in the procurement plan approved by the Bank and abide by the methods and ranges established therein. The executing agency and the Bank will agree upon a procurement plan covering the first 18 months of execution (Annex III). The MMAA is expected to hire members of the PCU team through a competitive process financed through technical cooperation operation ATN/OC-11640-BO, for the first 10 months that the PCU operates (see paragraph 3.1). Once the Program is approved and eligible for disbursements, the performance of members of the PCU will be appraised. Those rated satisfactory will continue providing services and will be funded from the proceeds of the loan. In this case they will be selected without competition to allow for service continuity.

Box 3-1 Thresholds for international competitive bidding processes	
Works	US\$3 million or more
Goods	US\$200,000 or more
Consulting services	US\$200,000 or more

- 3.8 **Works execution.** The PCU will hire construction firms specializing in water supply and sanitation projects to undertake the works. It will also hire consulting

- firms or individual consultants, depending on the complexity and scale of the project, for work supervision.
- 3.9 **Revolving fund.** The Bank will set up a revolving fund for up to 5% of the loan, which will be managed through a bank account opened in the name of the Program. The PCU will send the Bank consolidated reports within 60 days following the end of each calendar six-month period.
- 3.10 **Program monitoring.** The Program will be monitored using the Bank's supervision instruments, based on the preparation of an implementation plan, the procurement plan, and the results framework. The PCU and the Bank will agree upon an annual work plan (AWP) each year. The PCU will send semiannual reports on the progress achieved, as envisaged in the AWP, the results obtained from execution of the activities, and the plan of action for the following six-month period. The PCU will be responsible for monitoring financed projects, for which it may hire independent consulting services previously agreed upon with the Bank. The matrix indicators will focus on the operators' operational management and commercial results, and on the benefits derived from the physical works. The Bank will participate in the following stages of the project cycle: Identification—after a service provider is found eligible, the executing agency will send a project profile to the Bank for information; and Preparation—before signing the complementary agreement, the PCU will send a project report with environmental documentation to the Bank for its no objection. An evaluation will be conducted 24 months after the entry into force of the contract, and another at the end.
- 3.11 **Operation and maintenance.** The constructed works will be operated and maintained by the operators. During the preparation of the eligible projects, the PCU will verify that operators have the technical staff and resources needed to ensure proper operation and adequate maintenance of the works, in order to ensure that the equipment and structures are working properly and that the operational staff is adequately trained.
- 3.12 **Audit and inspection.** The PCU will submit annual audited financial statements on the Program. The external audit will be undertaken by a firm of independent auditors acceptable to the Bank, pursuant to the policies and requirements set out in AF-100 and AF-300. The auditors will be contracted in accordance with the procedures specified in the external audit bidding document (AF-200) and the terms of reference previously approved by the Bank (AF-400 and AF-500). The monitoring and evaluation arrangements annex describes the scope and frequency of the reports. Audit costs will be fully financed out of Program funds.
- 3.13 **Evaluation.** Before submitting the proposal for the financing of Phase II of the Program to the Bank, the PCU will hire a consulting firm to evaluate the Program in the following respects: (i) the progress of Program implementation; (ii) activities undertaken to make up for lost time in the event of delays in Program implementation; (iii) evidence that the conditions of Phase I financing contracts and agreements have been fulfilled; and (iv) evidence that the stipulated milestones

have been attained (see paragraph 1.21). The borrower will collect the data needed to evaluate the fulfillment of Program targets, in order to allow for a possible evaluation of its efficiency and effectiveness in achieving the proposed objectives and take advantage of lessons learned. Baseline data were collected during preparation of the operation, to be used to measure the project's effectiveness.

- 3.14 **Preparation activities and support for execution.** The following personnel will be hired with funding from technical cooperation operation ATN/OC-11640-BO: (i) the Coordinator and other PCU staff for 10 months (this staff will subsequently be funded out of Program resources); (ii) a consultant to support the PCU in developing the Operating Regulations; (iii) consulting services to design the unaccounted-for water reduction program for EPSAS; and (iv) a consultant to formulate the terms of reference for the metropolitan master plans.

RESULTS FRAMEWORK AND MATRIX OF INDICATORS
WATER AND SEWERAGE PROGRAM IN PERIURBAN AREAS (BO-L1034)

Goal: To help improve the health of the population living in periurban areas and other cities.								
Purpose: To improve access to water supply and sewerage services in periurban communities in El Alto, La Paz, Cochabamba, Santa Cruz, and Tarija.								
Purpose-related target: 500,000 inhabitants with improved water and sewerage services.								
Components	Output	Indicators ⁴	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Component 1: Water and sanitation projects	5 sample projects completed by the end of year 4	2 water supply projects completed by the end of year 2.		2				
		3 sewerage projects completed by the end of year 3.		2	3			
		5 projects delivered to the corresponding operators.			4	5		
	Portfolio of additional projects ¹ totaling US\$46 million ready by the end of year 3	Portfolio of additional projects defined at the end of year 2.		100% complete				
		Additional projects at final design stage ² by the end of year 3.		20% complete	50% complete	100% complete		
	Portfolio of additional projects totaling US\$46 million implemented by the end of year 6	Water supply projects (30% of total) executed by the end of year 6.				10%	20%	30%
		Sewerage projects (70%) implemented by the end of year 6.				20%	40%	70%
Component 2: Preinvestment studies and master plans	Portfolio of projects ready for execution	Portfolio of projects for US\$100 million at the final design stage ² by the end of year 6.			10%	40%	70%	100%
	4 master plans prepared	Metropolitan sanitation master plans prepared by the end of year 3.		3	4			
Component 3: Institutional strengthening	Institutional strengthening plans implemented for all operators within the Program by the end of year 5	ICAS diagnostic assessments completed for all operators within the Program.	10%	30%	70%	100%		
		Institutional strengthening plans prepared for all operators within the Program.	10%	30%	70%	100%		
		Institutional strengthening actions implemented for all operators within the Program ³ .		10%	30%	70%	100%	
	Institutional strengthening plans implemented for sector authorities by the end of year 5.	Institutional strengthening plan aimed at Program objectives agreed upon by the end of year 1.	100%					

		Institutional strengthening plan implemented by the end of year 5.		10%	30%	70%	100%	
Component 4: Program management	PCU operating	PCU set up and operating as a condition precedent to disbursement.	100%					
	Program support consulting firm operating	Program support consulting firm contracted and operating as of the second half of year 1.	100%					
	Information systems installed and operational	Planning and global oversight system operational by the end of year 1.	100%					
		Management information system operating by the end of year 1.	100%					
		Financial management and information system operating by the end of year 1.	100%					
	Audit, evaluation, and monitoring	6 annual external audit reports prepared and delivered to the Bank.	1	2	3	4	5	6
		12 semiannual technical and financial reports delivered to the Bank.	2	4	6	8	10	12
		1 midterm evaluation commissioned and performed.				1		
		1 final evaluation commissioned and performed.						1

Notes:

¹ Of the additional projects, 30% (in value terms) will be water supply projects, while the others will be sewerage or wastewater treatment projects.

²Final design includes all technical, institutional, financial, and socioeconomic evaluations needed for project viability, as well as the environmental permit.

³ The institutional strengthening of an operator will be considered complete when the operator provides evidence of having attained the following indicators: (i) the operator's code of good governance is in place; (ii) the level of unaccounted-for water is below 50%; (iii) the cash flow generated from fees charged covers all operating, maintenance, and infrastructure replacement costs (there should be an additional margin for large-scale operators: EPSAS, SEMAPA and SAGUAPAC); (iv) the corresponding operator has a policy for routine public dissemination of performance indicators in the media.

⁴ The baseline for all indicators is zero.

**SUMMARY PROCUREMENT PLAN FOR THE FIRST 18 MONTHS OF EXECUTION
WATER AND SEWERAGE PROGRAM IN PERIURBAN AREAS (BO-L1034)**

	Category and description of procurement contract	Estimated cost of procurement (US\$ thousand)	Source of Financing		Procurement method (1)	Prequalification (Yes/No)	Estimated date of publication of the specific procurement notice	Status (pending, in process, awarded, canceled)
			IDB %	Spanish Fund %				
1	Consulting services							
1.1	Program Coordinator	38		100%	DC	No	August 09	Pending
1.2	Water and sanitation engineering specialist	34		100%	DC	No	August 09	Pending
1.3	Environmental management specialist	34		100%	DC	No	August 09	Pending
1.4	Specialist in community development and institutional strengthening	34		100%	DC	No	August 09	Pending
1.5	Financial-economic specialist	34		100%	DC	No	August 09	Pending
1.6	Procurement specialist	28		100%	DC	No	August 09	Pending
1.7	Program financial manager	28		100%	DC	No	August 09	Pending
1.8	Procurement and supervision advisors (4)	96		100%	NICQ	No	October 09	Pending
1.9	Consulting firm for technical-economic evaluation of projects	300		100%	ICB	No	October 09	Pending
1.10	Development of metropolitan master plans	5,900		100%	ICB	No	November 09	Pending
1.11	Preinvestment studies	800	87.5%	12.5%	NCB/ICB	No	February 10	Pending
1.12	Works supervision	500		100%	NCB	No	February 10	Pending
1.13	Consulting services for institutional strengthening	700	100%		NCB/ICB	No	February 10	Pending
2	Engineering works (including works management and community development)							
2.1	COOPLAN water	5,559		100%	ICB	No	February 10	Pending
2.2	COOPLAN sewerage	9,736		100%	ICB	Yes	February 10	Pending
2.3	EPSAS district 7 water	447		100%	ICB	No	February 10	Pending
2.4	EPSAS district 7 sewerage stage 1 (Central Zone and Rigoberto Paredes)	1,391		100%	ICB	No	February 10	Pending
3	PCU administrative costs	\$50		100%	PC (shopping)		N.A.	Pending

(1) Note:

CS: Continuity of services

DC: Direct contracting

ICB: International competitive bidding

NCB: National competitive bidding. Review by the Bank will be ex-post.

NICQ: National Individual Consultant – selection based on qualifications. Review by the Bank will be ex-post.

PC: Price comparison (shopping). Review by the Bank will be ex-post.