

PUBLIC

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## **ARGENTINA**

# **POTABLE WATER PROJECT FOR THE WESTERN ZONE OF THE CITY OF BUENOS AIRES**

**(AR-0039)**

**LOAN PROPOSAL**

**August 3, 1988**

# Basic Socioeconomic Data of Argentina

## 1. General

Total population (millions of inhabitants. 1987)	31.5
Rural population (%) (1987)	14.7
Land area (thousands of Km <sup>2</sup> )	2,776.7
Population per Km <sup>2</sup>	11.3
Birth rate per thousand (%) (1980-85)	24.6
Population growth rate (average 1980-85) (%)	1.6
Death rate per thousand (%) (1980-85)	8.7
Infant mortality rate per thousand (1980-85)	36.2
GDP per capita US\$ 1987 <sup>a/</sup>	2,745.0
Life expectancy at birth (1980-85)	69.7
Literacy (1982) (%)	94.2
Official exchange rate (December 1985); (australes/US\$)	0.80
December 1986 (australes/US\$)	1.26
December 1987 (australes/US\$)	3.75
April 1988 (australes/US\$)	6.21
Energy consumption per inhabitant. 1985 (Kwh)	1,245.0
Low income level per inhabitant	
December 1985 (in australes)	765
December 1986 (in australes)	1,423
December 1987 (in australes)	2,415
March 1988 (in australes)	3,385

## Economically Active Population (1986):

	<u>Thousands</u>	<u>%</u>
<u>T o t a l</u>	<u>9,989</u>	<u>100.0</u>
Agriculture and fishing	1,289	12.9
Mining	50	0.5
Manufacture	2,138	21.4
Construction	1,079	10.8
Commerce	1,828	18.3
Transportation	499	5.0
Electricity, water and gas	109	1.1
Financial services and others	2,997	30.0

<u>Unemployment and Underemployment Rate</u>	<u>Unemployment</u>	<u>Underemployment</u>
October 1983	3.9	5.9
October 1984	4.5	5.9
October 1985	5.9	7.4
October 1986	5.2	7.3
October 1987	5.7	8.1

<sup>a/</sup> US\$ at 1986 prices.

2. Gross Domestic Product a/ (at market prices)	Composition (%)					Real Annual Growth Rate (%)				
	1983	1984	1985	1986	1987	1983	1984	1985	1986	1987 b/
<u>Expenditure of GDP</u>										
GDP	100.0	100.0	100.0	100.0	100.0	2.8	2.6	-4.4	5.4	1.6
Gross domestic investment	14.9	12.0	10.3	11.6	13.3	-10.7	-10.6	-20.0	18.2	16.1
Consumption	79.4	82.9	82.1	83.9	84.2	3.6	6.0	-6.2	7.7	2.0
Exports	14.5	14.0	16.8	14.8	13.6	7.8	-0.7	12.5	-7.0	-6.4
Imports	8.8	8.9	9.2	10.3	11.1	-4.7	6.1	-14.4	17.4	9.3
<u>By Origin c/</u>										
Agriculture	15.3	15.4	15.9	14.6	14.7	1.9	3.6	-1.3	-2.8	1.8
Mining	2.8	2.7	2.7	2.5	2.5	0.2	-0.6	-2.6	-0.5	-1.9
Manufacturing	24.2	24.8	22.6	24.2	23.6	10.8	4.0	-10.3	12.9	-0.6
Construction	4.7	3.6	3.2	3.3	3.7	-13.1	-20.0	-6.7	9.0	14.8
Transportation	11.4	11.6	11.7	11.5	11.5	4.2	4.4	-2.9	3.4	2.2
Commerce	12.8	13.1	14.1	14.5	14.5	2.1	4.6	-8.3	8.7	1.5
Government	10.7	10.7	10.7	10.5	n.a.	0.1	1.9	0.9	0.4	n.a.
Electricity, gas and water	4.3	4.4	4.7	4.8	4.9	8.0	6.5	1.3	7.4	5.4
Financial services	7.7	7.7	7.8	7.9	8.0	-7.0	1.3	-1.2	6.9	2.9
Other services	6.1	6.0	6.7	6.0	16.6 d/	1.2	2.5	1.4	1.5	n.a.

a/ At 1970 constant prices.

b/ Preliminary.

c/ At factor cost.

d/ Includes Government.

n.a. Not available.

Source: Central Bank and Ministry of Economy.

Millions of dollars					
3. <u>External Trade</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987 a/</u>
<u>Exports of Goods (FOB)</u>	<u>7,836</u>	<u>8,107</u>	<u>8,396</u>	<u>6,852</u>	<u>6,356</u>
Beef	338	182	160	226	227
Other meat	92	75	64	60	59
Corn	803	744	766	651	291
Wheat	1,474	923	1,133	329	348
Sorghum	554	451	296	152	66
Oil seeds	364	948	731	647	316
Vegetable oil	517	945	970	645	532
Leather goods	300	331	317	381	410
Wool	145	112	130	122	137
Industrial foods products	1,147	1,141	855	1,168	1,369
Mineral products	372	365	657	184	129
Metalmechanic, machinery and transportation equipment	591	695	1,013	966	959
<u>Imports of Goods (CIF)</u>	<u>4,505</u>	<u>4,584</u>	<u>3,814</u>	<u>4,724</u>	<u>5,800</u>
Consumption goods	208	249	198	286	276
Intermediate goods	3,074	3,224	2,514	3,409	3,916
Capital goods	769	643	648	614	975
Fuel	454	468	454	415	633

a/ Preliminary.

Source: Central Bank.

Millions of Dollars					
4. <u>Balance of Payments</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987 a/</u>
Current account balance	-2,440.5	-2,543.0	-963.6	-2,861.4	-4,702.0
Merchandise balance	3,710.5	3,940.1	4,895.0	2,456.6	558.0
Exports of goods (FOB)	7,833.6	8,072.0	8,419.2	6,847.8	6,196.0
Imports of goods (FOB)	4,123.1	4,131.8	3,524.2	4,391.2	5,638.0
Net services	-6,167.1	-6,484.2	-5,858.5	-5,319.2	-5,252.0
Transfers	16.0	1.0	0.0	1.2	-8.0
Capital account (net)	410.5	2,738.8	2,254.1	1,681.2	1,850.0
Change in net reserves (- = increase)	2,472.6	-143.5	-977.8	874.0	2,209.0

a/ Preliminary.

Source: International Monetary Fund and Central Bank.

Percentage of GDP					
5. <u>Non Financial Public Sector</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987 a/</u>
Current revenues	23.6	22.9	27.5	25.9	24.4
Current expenditures	26.8	25.2	25.4	23.2	-24.4
Current Savings	-3.2	-2.3	2.1	2.7	0.0
Capital expenditures	7.9	6.1	5.6	5.4	6.3
Deficit (-) Surplus (+)	-11.1	-8.4	-3.5	-2.7	-6.3
Domestic financing	n.a.	n.a.	n.a.	n.a.	n.a.

a/ Preliminary.

n.a. Not available

Source: Ministry of Economy.

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6. <u>Monetary Survey</u>	<u>Annual Growth Rate</u>				
	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987*</u>
Domestic credit	400.8	565.7	356.1	86.8	151.7 <u>a/</u>
Public (net)	669.8	549.4	389.7	68.1	233.7 <u>a/</u>
Private (net)	345.5	567.2	345.4	93.2	119.5 <u>a/</u>
Money supply (M1)	362.0	546.7	697.9	70.7	106.6 <u>a/</u>

a/ Preliminary. 12 month increase as of June.

Source: International Monetary Fund.

7. <u>Prices</u> (Annual growth rate)	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
GDP deflator	158.2	150.2	100.7	105.6	248.2	349.4	654.9	684.1	78.1	129.4
Consumer prices										
annual average	175.5	159.5	100.8	104.5	164.8	343.8	626.7	672.2	90.1	131.3
(Dec. to Dec.)	169.8	139.7	87.6	131.3	109.7	433.7	688.0	385.4	81.9	174.8
Wholesale prices										
(annual average)	146.0	149.3	75.5	109.6	256.2	360.9	575.1	662.9	63.9	122.9

Source: Central Bank.

8. <u>External Debt</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
<u>Total</u> (billions of US\$)	<u>45.07</u>	<u>46.17</u>	<u>49.33</u>	<u>51.42</u>	<u>54.20</u> <sup>a/</sup>
Public sector	31.71	35.53	40.87	44.72	n.a.
Private sector	13.36	10.64	8.46	6.70	n.a.
Bilateral institutions	1.34	2.02	0.90	0.59	n.a.
Paris Club, 1982-85	-	-	2.06	2.29	n.a.
Paris Club, 1986	-	-	-	2.24	n.a.
Multilateral institutions	1.72	1.68	2.28	2.89	n.a.
IMF	1.17	1.14	2.29	2.72	n.a.
Bonds holders	4.21	4.31	3.92	3.64	n.a.
Banks	31.87	32.74	33.78	33.70	n.a.
Other creditors	4.76	4.29	4.10	3.35	n.a.
<u>Debt Services</u>					
Total services (billions of US\$)	8.56	6.26	8.26	6.18	6.45
Services/exports of goods and non factor services (%)	91.9	86.0	81.8	72.8	81.3

<sup>a/</sup> Non dollar denominated obligations valued at exchange rates as of December 31, 1986.

n.a. Not available.

Source: Central Bank.

9. <u>IDB Loans</u> (Approved through Dec. 31, 1987)	<u>Millions of US\$</u>	<u>% of Total</u>
<u>T o t a l</u>	<u>4,264.5</u>	<u>100.0</u>
Ordinary capital	1,904.1	44.7
Interregional capital	1,791.9	42.0
Fund for Special Operations	519.4	12.2
SPTE	45.9	1.1
Other funds	3.1	0.1
<u>By Sector</u>	<u>4,264.5</u>	<u>100.0</u>
Agriculture and fishing	437.8	10.3
Industry and mining	741.9	17.4
Transportation and communications	418.9	9.8
Energy	1,814.3	42.5
Education, science and technology	283.4	6.6
Housing and urban welfare	163.8	3.8
Health	304.5	7.1
Preinvestment	3.3	0.1
Export financing	96.7	2.3

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ARGENTINA

POTABLE WATER PROJECT FOR THE WESTERN ZONE OF THE CITY OF BUENOS AIRES

(AR-0039)

LOAN PROPOSAL

I. BASIC INFORMATION ON THE OPERATION

A. Borrower and executing agency

- 1.01 The borrower will be the Argentine Nation and the executing agency will be Obras Sanitarias de la Nación (OSN) (National Sanitation Works) which is responsible for providing water and sewerage services in the metropolitan area of Buenos Aires.

B. Objectives and description

- 1.02 The objectives of the project are: to complete the public water supply system serving households in the districts of Tres de Febrero and Morón in the western zone of Buenos Aires, by replacing the current groundwater supply source with surface water treated at the San Martín water treatment plant, which would be modernized and expanded to serve the western zone and other areas in Greater Buenos Aires. As well, the project will help to expand the customer metering program and assist in the process of strengthening the OSN.
- 1.03 Project activities would be conducted over a term of five years and would consist of: (a) construction of a series of hydraulic works including the following: an underground watercourse approximately 16.5 km long, two pumping stations with their respective elevated tanks, trunk lines, distribution mains, service lines and approximately 144,000 metered household connections to supply a population in the order of one million; (b) studies and final designs for the sewerage system and the sewage treatment plants required in the western zone; (c) modernization of the San Martín water treatment plant to improve the quality of treated water and increase its capacity from 2 million to 3.4 million cubic meters per day to meet the requirements of the metropolitan area up to 1997; and (d) a program of supplementary activities involving technical aspects and community promotion related to project execution.

C. Total cost and financing

- 1.04 The total cost is equivalent to US\$245 million, 40% of which, i.e., US\$98 million, would be financed by the Bank.

D. Proposed terms and conditions

- 1.05 The terms and conditions for the proposed financing from the Bank's ordinary capital resources are:

Amortization term:	25 years
Disbursement term:	5 years
Grace period:	5 years
Interest:	In accordance with the rates in effect in the quarter in which a disbursement is made.
Credit fee:	1-1/4% per annum on the undisbursed balance.
Supervision and inspection:	1% of the total amount of the financing.

II. FRAME OF REFERENCE 1/

A. Potable water sector in Argentina

1. General organization

- 2.01 The Department of the Secretary of Water Resources (SRH) of the Ministry of Public Works and Services is the agency responsible for planning and general supervision of the potable water and sewerage sector in Argentina, which is decentralized. Since 1980, the provincial governments and the municipalities have been responsible for providing these services. Prior to that time, the OSN was responsible for planning, building and operating water and sewerage systems in the country's main cities. Since the date in question, its jurisdiction has been limited to the federal capital and the 13 divisions (municipalities) that make up Greater Buenos Aires. The OSN transferred all its offices in the provinces to provincial authorities. Each province has organized its services differently either through public companies (14), sanitation works directorates (8), or cooperative municipal bodies (1). Community participation is very active in the smaller cities.
- 2.02 Communities with fewer than 15,000 inhabitants are served by the Servicio Nacional de Agua Potable y Saneamiento (SNAP) (National Water and Sewerage Service) which carries out its task of planning, promoting, financing and providing technical support for the construction and operation of water services through the Servicios Provinciales de Agua Potable y Saneamiento (SPAPs) (Provincial Water and Sewerage Services). The SNAP comes under the Department of the Secretary of Water Resources.

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1/ Annex II-1 of the Project Report discusses the recent economic situation and future prospects.

- 2.03 In addition to the Department of the Secretary of Water Resources, a role is played in the sanitation sector by the Department of the Secretary of Planning coming under the Ministry of Economic Affairs, which assigns priority to public sector investment projects, and by the National Environmental Sanitation Directorate of the Ministry of Health and Social Action, which is responsible for controlling water quality throughout the country. Last, a State Corporations Board was recently created which is responsible for supervising state-owned companies and setting rates.
- 2.04 In short, the sector has planning and regulating agencies at the national level, while the provincial and municipal levels are responsible for executing works and managing water and sewerage systems. The government is taking steps to remedy the lack of coordination that has existed in the past among the different bodies involved, one of which is preparation of a national basic sanitation plan that will define for the next decade objectives, goals and investment alternatives, within an institutional frame of responsibilities at the federal and provincial levels. The SRH will prepare this plan with financing from a loan already arranged with the World Bank. This plan is expected to coordinate the sector over the medium term under the guidelines for public sector reform which has already begun in Argentina.
- 2.05 The institutional changes that occurred in the sector in 1980 did not begin to translate into modifications in institutional structures until 1984. The OSN, in particular, has found it difficult to adapt to its new features, and this has affected its efficiency and prevented it from building up a satisfactory organization in the areas of administration, finance, accounting, and operations, as can be seen in the institutional analysis conducted by the Bank.

## 2. Coverage of services

- 2.06 Argentina has a large shortfall in sanitation services; in 1986 it was estimated that 60% of the population was provided with water services and 34% had sewer services. This means that over 12 million people lack reliable water services and 21 million lack sewer services. The percentages of coverage are lower than the average in Latin America, which was 61% for potable water and 34.9% for sewerage at national levels in the same year. When coverage for the urban population is compared, Argentina's situation in the Latin American context is even more critical, since coverage for potable water is only 66% and for sewerage only 37%, which is much lower than coverage for urban zones (cities of over 2,000 inhabitants) in Latin America, which in 1985 was 80.3% for water and 48% for sewerage.
- 2.07 The lack of services is closely linked to the financial situation of the utility companies in recent years. The rates charged generally have covered only their operating costs, and accordingly, necessary maintenance and vital investments to expand and upgrade services were

postponed until budgetary resources could be obtained from the federal or provincial governments. The population has compensated for this lack of service with individual solutions, including deep wells, blind wells, water tanks and truck-transported water, with the consequent problems of contamination, higher cost and insufficient supply, among others.

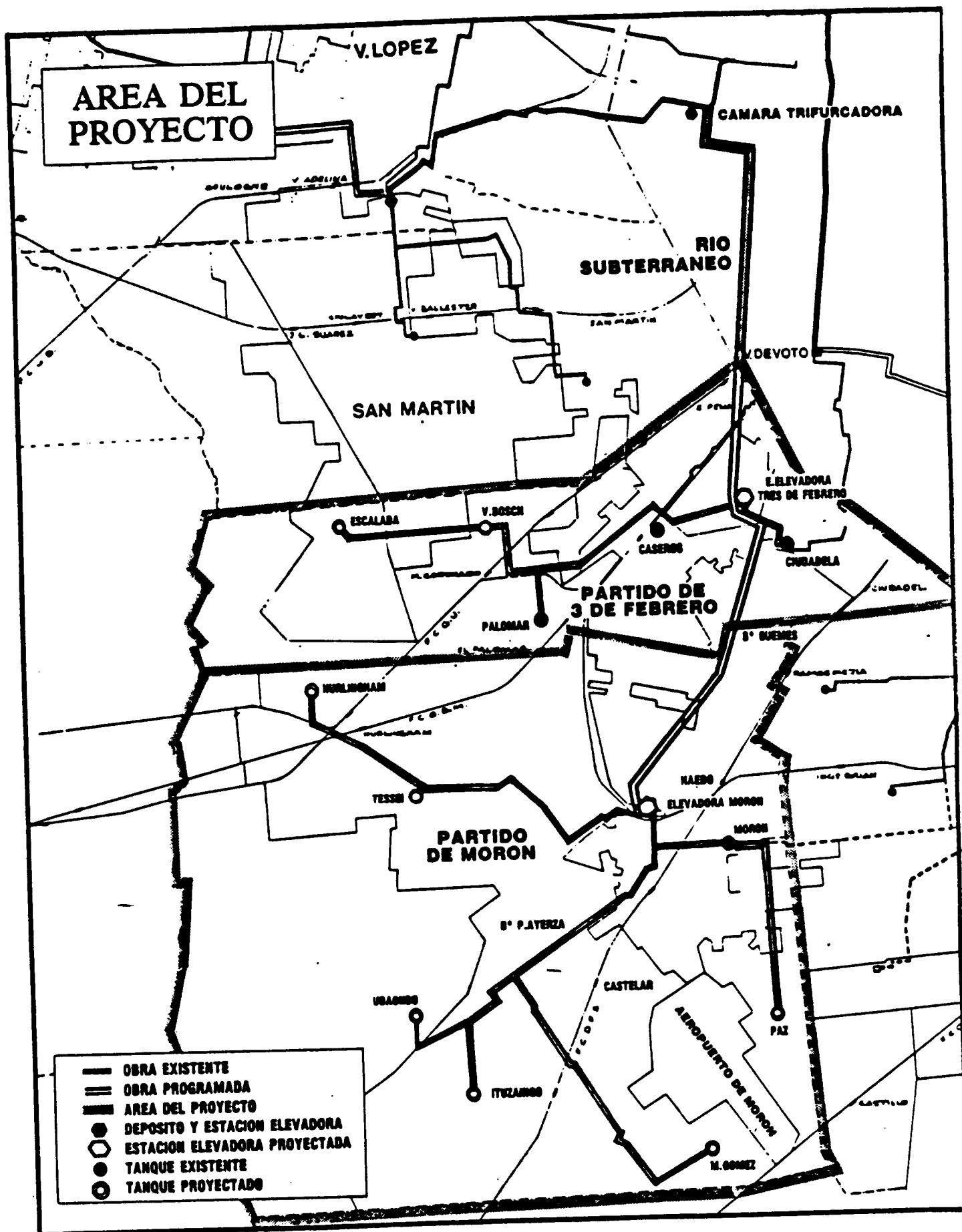
- 2.08 The coverage of services in the metropolitan area of Buenos Aires is critical, because of the current situation in the 13 suburban divisions of the province of Buenos Aires served by the OSN. The situation as given in the corporation's annual report for 1985 is as follows:

	<u>Federal Capital</u>	<u>Thirteen divisions</u>	<u>Total</u>
Population (millions of inhabitants)	2.92	5.54	8.46
Population with potable water	2.92	2.56	5.48
% with potable water	100.00	46.40	65.00
Population with sewer services	2.92	1.71	4.63
% with sewer services	100.00	30.90	54.60

B. Basic sanitation in the project area

1. Potable water

- 2.09 The project area includes the districts of Morón and Tres de Febrero, which are located to the west of the metropolitan region of Buenos Aires and cover an area of 177 km<sup>2</sup>. The estimated population in 1986 was 1,024,300 (662,000 in Morón and 362,000 in Tres de Febrero). Most of the area is urban, population density is high (5,700 inhabitants/km<sup>2</sup>), and the zone is integrated into the economic life of the city of Buenos Aires. Residential-commercial sectors predominate, but there are also many industrial plants, particularly in Tres de Febrero. The map on the following page shows the project zone.



2.10 Current types of water supply for the population in the zone are summarized below:

Source of water supply (1986)

Type of service	I N H A B I T A N T S					
	Tres de Febrero		Morón		Total	
	Inhab.	%	Inhab.	%	Inhab.	%
OSN system	181,500	50.1	192,000	29.0	373,500	36.5
Neighborhood system	26,500	7.3	18,400	2.8	44,900	4.4
Individual wells	154,300	42.6	451,600	68.2	605,900	59.2
TOTAL	362,300	100.0	662,000	100.0	1,024,300	100.0
	=====	=====	=====	=====	=====	=====

2.11 The water consumed in the zone comes mainly from underground sources. The only significant exception is the surface water (River Plate) obtained by the OSN from the systems of neighboring districts to serve part of the population in Tres de Febrero. The rest of the water delivered by the OSN to the system in Tres de Febrero and Morón is obtained from wells that the corporation owns in the zone. The neighborhood networks and the individual systems are fed from underground sources. Water for commercial, public and non-potable industrial consumption comes from private wells and from the public network. Water for industrial use comes exclusively from wells belonging to the industrial plants themselves. When these components are added to domestic consumption, annual average consumption for the zone is 329 liters per person per day.

2.12 The project zone is currently facing serious problems due to the quality and quantity of available water. In the first place, the underground source in most of the zone under study is gradually becoming exhausted. This is reflected in a drop in the pressure levels of the aquifer and in the output of public and private wells. This problem is most serious in Tres de Febrero and the eastern part of Morón, an area that partially coincides with existing coverage of the public water network. In the western part of Morón, on the other hand, the groundwater source is not contaminated and has sufficient capacity for current consumption.

2.13 In the second place, there is a major problem with contamination of groundwater in parts of the zone under study. On the banks of the Reconquista River a high degree of salinization (natural contamination) of the groundwater has been detected which makes it unsuitable for human consumption; this is especially critical in the northern part of Morón. There is also a high nitrate concentration (induced contamination) in the water pumped in Tres de Febrero and in the eastern part of Morón. In the wells drilled by the OSN, concentrations of nitrates much higher than internationally accepted levels have been recorded. <sup>1/</sup> The presence of high concentrations of

<sup>1/</sup> The nitrate content affects oxygen in the blood causing poisoning and death, especially in children under one year of age (metaglobinemia).

nitrate is a problem that is closely linked to the overuse of groundwater sources.

## 2. Sewerage

- 2.14 Morón and Tres de Febrero have a public sewer system that serves 21% and 42% of the population, respectively, and therefore, the population that does not receive service uses individual waste disposal systems, such as septic tanks and soakage pits.
- 2.15 As part of the project, a sewerage plan will be prepared, requiring a biological treatment plant prior to the final discharge of sewage into the Reconquista River. The plan to expand the corporation's services gives priority to the potable water project, and therefore the sewerage project will be executed in a subsequent stage.

## C. IDB participation in the sector

- 2.16 The Bank has helped to finance potable water programs through nine loans in an amount equivalent to US\$177.2 million, US\$53.7 million of which was used for the urban sector and US\$124.5 million for rural waterworks. Chapter IV of document PR-832-A, which is the project report on the Rural and Urban Potable Water Program (loans 14/IC-AR and 526/SF-AR) of October 1977, presents an evaluation of the five first loans granted to develop the Argentinian potable water sector, two of which were used for the rural sector and the other three for the urban sector. The Project Report for the operation under consideration here evaluates loans 83/IC-AR and 661/SF-AR intended for the fourth stage of the rural potable water program which is currently under way, and loans 14/IC-AR and 526/SF-AR, which have urban and rural components, executed by the OSN and the SNAP, respectively, and whose execution, although delayed (7.5 years), has been completed satisfactorily. (See Chapter II of the project report.)
- 2.17 With respect to OSN compliance with contractual clauses, loans 14/IC-AR and 526/SF-AR included a commitment to install 440,000 meters in the country, a condition that was partially met with the installation of 200,000 meters in Buenos Aires. The 240,000 remaining meters were to be installed in the provinces, since the OSN had national jurisdiction when the loan was approved. However, when its authority was limited to the metropolitan area of Buenos Aires and the provinces took over full responsibility for providing water services, it was impossible for the OSN to continue with installation of the 240,000 meters in question. The IBRD will finance the purchase and installation of 200,000 meters for the OSN and 64,000 meters for Rosario and Córdoba. Furthermore, the Rural Potable Water Program has included the installation of meters on connections to the systems built under the program, and this provision will be maintained in the operation for the fifth stage of that program which was recently approved by the Bank.

- 2.18 As for the rate clause, it was established in loans 14/IC-AR and 526/SF-AR that, for the urban component of which the OSN was in charge, rate revenues were to be high enough to cover operating costs of the La Matanza system (the project financed by the Bank) and the servicing of both loans. It was further stipulated in the loan contracts that the rate in effect in the La Matanza system in December 1977 was to be increased annually by 25%, in real terms, in order to achieve the above-mentioned coverage, as soon as the project being financed was placed in operation.
- 2.19 In the OSN's accounting system, revenues and expenditures are not classified by water system, and its accounting records thus do not provide the information that would be needed to properly establish rates by system. It also is impossible, with the organization's current system of accounts, to determine the coverage of rates by system, if rates were to be set without changing the accounting system. The OSN's rate structure does not provide for rates by system. For these same reasons, the OSN could not produce the rates for the La Matanza system to which the 25% annual increase stipulated in the contracts for loans 14/IC-AR and 526/SF-AR was to be applied. In short, the aforementioned rate provisions that appear in the loan contracts clearly were established without bearing in mind that, given the nature of the OSN's accounting system, there would be difficulties in complying with those provisions and in ascertaining whether the coverage target in La Matanza had been achieved through the effect of general OSN rates.
- 2.20 In addition to the loans already discussed, in September 1986 the Bank approved financing for a Global Urban Development Program under loans 206/IC-AR and 514/SF-AR for US\$120 million in foreign exchange and US\$2 million in local currency, respectively. The objective of the program is to improve living conditions for the Argentinian urban population that lives in small and medium-sized cities in the interior. It consists of a line of credit to finance urban development works at the provincial and municipal levels, and a subprogram for technical assistance in preparing projects, conducting studies and strengthening the agencies responsible for delivering urban services. It is estimated that the demand for financing for potable water services will represent approximately one half of program resources. The loans were signed on January 20, 1987, and the prior conditions for the first disbursement have been complied with.

D. Actions of other institutions

- 2.21 The World Bank approved a loan, whose contract was signed in November 1986, in the amount of US\$60 million to rehabilitate potable water and sewerage systems, extend service to new areas and strengthen the planning and managerial capacity of the nation's sanitation sectors. The program includes:



- (a) Preparation of a national potable water and sewerage plan, including an investment plan, criteria for financial and technical analyses, the design of systems for services, rate levels and structures, and an analysis of the institutional and financial structure required for proper development of the sector.
  - (b) A program for operational improvements to the systems in Buenos Aires and Rosario, including metering, rehabilitation of distribution systems and improved management of the sector at the national level.
  - (c) Rehabilitation and extension of the potable water system in Córdoba, including a new treatment plant, rehabilitation of the existing plant, completion of a canal, installation of pumping stations and construction of trunk and distribution mains.
  - (d) A program for institutional strengthening of the OSN, the Santa Fé Provincial Directorate of Sanitation Works and the Córdoba Provincial Sanitation Works Authority that includes: improvements in the systems for accounting, financial administration and purchasing, and in the systems for investment planning, operations and collections.
- 2.22 During the analysis of the operation, it was concluded that it was essential to execute the components of the Operational Improvement Program for the OSN mentioned in paragraph 2.21 (a) and (d) above. Accordingly, it is recommended that the firm which will advise the OSN on program execution be contracted as a prior condition to the first disbursement of the loan. Also, the Bank will follow progress in the program through annual reports since its execution is vital if the technical and commercial goals for the corporation are to be attained. It was also considered necessary to increase the scope of the Operational Improvement Program by preparing a study on organizational and managerial aspects of the OSN, which will be carried out by the SRH for the purpose of making improvements to the company's structure and its management and internal control systems (see Recommendations).

### III. THE PROJECT

#### A. Objectives

- 3.01 The objectives of the project are: (a) to replace the potable water source for the districts of Morón and Tres de Febrero and expand public utility services at the household level to serve a population in the order of one million inhabitants; (b) to rehabilitate and modernize the San Martín treatment plant and increase the plant's capacity to serve the project area and other parts of Greater Buenos Aires; (c) to prepare a sewerage project for the two districts in question; (d) to contribute to the customer metering program; and (e) to help in the process of strengthening the OSN.

B. Description

- 3.02 The project for which Bank financing has been requested will include execution of the following works:
1. An underground watercourse, 3.30 m in diameter and approximately 16.5 km long with a capacity close to 8 m<sup>3</sup>/sec which would connect the existing Saavedra pumping plant to the planned plants in Tres de Febrero and Morón.
  2. Two pumping stations, one at Tres de Febrero with three 1,000 HP electric pumps and another at Morón with six 1,000 HP electric pumps. An elevated tank with a capacity of 2,900 m<sup>3</sup> will be installed at the Tres de Febrero station and one with a capacity of 5,800 m<sup>3</sup> at the Morón station.
  3. Two interconnecting lines: (i) one towards Tres de Febrero for an approximate length of 10.3 km with pipes whose diameters range from 0.6 m to 1.10 m; and (ii) another towards Morón, with an approximate length of 31.2 km and pipes with diameters ranging from 0.4 m to 1.10 m. Also included are two elevated tanks with a capacity of 1,300 m<sup>3</sup> each at Tres de Febrero, and five tanks with a capacity of 1,300 m<sup>3</sup> each at Morón.
  4. Installation of distribution mains: (i) approximately 40 km in Tres de Febrero, with diameters from 0.1 m to 0.60 m; and (ii) approximately 380 km in Morón, with diameters from 0.1 m to 0.8 m.
  5. Service lines involving approximately 92.3 km of pipes 0.075 m in diameter in Tres de Febrero, and 615.1 km of pipes with the same diameter in Morón. This also includes installation of 144,000 metered domestic connections in Tres de Febrero and Morón.
  6. Expansion and improvements to the existing San Martín treatment plant to increase its capacity from 2 million to 3.2 million m<sup>3</sup> per day.
- 3.03 The project also includes: (a) studies and final designs for sewer works in the districts of Morón and Tres de Febrero, including a wastewater treatment plant or plants, as necessary; (b) purchase and installation of 60,000 meters for high-consumption zones in Greater Buenos Aires; (c) a technical cooperation program to conduct a series of studies to develop technologies and train OSN staff; and (d) a community promotion program aimed at motivating, informing, and organizing prospective users of the project works.
- 3.04 The technical assistance program mentioned in the foregoing paragraph will comprise the training of OSN staff members and advice given by experts in such subjects as the design, construction, operation and maintenance of the General San Martín water treatment plant; the most

advanced technology in the field of sanitary hydraulic structures; implementation of a program for gradual removal of pollution along the shores of the River Plate, between Tigre and El Centro, with emphasis on the Arroyo Morón-Río Reconquista area; definition of the type of water disinfection facility to be installed at the San Martín plant; and methods of dealing with the problem of sludge disposal and coagulant recovery at that plant. The technical assistance would also provide for consideration of other environmental issues, as well as for designing a rate schedule based on metered service and helping OSN to make a study analyzing alternatives and designs of the sanitary sewerage system for the Morón and Tres de Febrero districts.

C. Cost and financing

- 3.05 The total cost is estimated as equivalent to US\$245 million, of which the Bank would finance US\$98 million (40%), the percentage established in the current matrix for urban development and social infrastructure projects in group A countries (Document FP-33-1). The OSN will contribute the equivalent of US\$147 million, which may include contributions from the final beneficiaries for the construction of supply lines. The detailed budget is given in the following table.

POTABLE WATER - BUENOS AIRES  
COST AND FINANCING  
(in thousands of U.S. dollars)

<u>Investment category</u>	<u>IDB</u>	<u>LOCAL</u>	<u>TOTAL</u>	<u>%</u>
1. <u>Engineering and administration</u>	<u>-</u>	<u>13,000</u>	<u>13,000</u>	<u>5.3</u>
1.1 Engineering	-	4,000	4,000	
1.2 Supervision	-	5,700	5,700	
1.3 Administration	-	3,300	3,300	
2. <u>Direct costs</u>	<u>62,300</u>	<u>96,700</u>	<u>159,000</u>	<u>64.9</u>
2.1 Underground watercourse	14,800	12,500	27,300	
2.2 Pumping stations	5,700	5,500	11,200	
2.3 Interconnecting lines	7,400	5,000	12,400	
2.4 Distribution mains	16,600	11,000	27,600	
2.5 Elevated tanks	1,700	1,100	2,800	
2.6 San Martín treatment plant	12,700	13,500	26,200	
2.7 Service mains	-	28,500	28,500	
2.8 Meters and connections	3,400	19,600	23,000	
3. <u>Associated costs</u>	<u>500</u>	<u>5,200</u>	<u>5,700</u>	<u>2.3</u>
3.1 Land	-	1,400	1,400	
3.2 Technical cooperation	500	300	800	
3.3 Western B.Aires sewerage studies	-	2,000	2,000	
3.4 Community information	-	1,500	1,500	
4. <u>Unallocated</u>	<u>16,561</u>	<u>29,187</u>	<u>45,748</u>	<u>18.7</u>
4.1 Contingencies	6,285	11,465	17,750	
4.2 Escalation	10,276	17,772	27,998	
5. <u>Financial expenses</u>	<u>18,639</u>	<u>2,913</u>	<u>21,552</u>	<u>8.8</u>
5.1 Interest	17,659	-	17,659	
5.2 Commitment fee	-	2,913	2,913	
5.3 IDB inspection	980	-	980	
T O T A L	98,000	147,000	245,000	100.0
	=====	=====	=====	=====
Percentage	40.0	60.0	100.0	

- 3.06 The cost of each component was prepared by the OSN and updated to September 30, 1987. The analysis indicates that these costs are in line with unit prices and the cost of manpower in Argentina. A subsequent review using information as of February 28, 1988, confirmed the price analysis conducted. The terms and conditions proposed in paragraph 1.05 are in accordance with current policies and were used to calculate the financial costs.

#### IV. PROJECT EXECUTION

##### A. Borrower and executing agency

- 4.01 The borrower would be the Argentine Nation and the project executing agency would be Obras Sanitarias de la Nación (OSN). The proceeds of the financing would be transferred to the OSN as a loan, on the same terms and conditions under which they were received by the Argentine Nation. Although this transfer would be formalized under the decree approving signature of the prospective loan contract, it has been considered necessary to provide that, as a condition precedent to the first disbursement, it must be demonstrated to the Bank's satisfaction that the necessary legal steps have been taken in this connection (see Proposed Resolution).

##### B. Institutional executing mechanism

- 4.02 The OSN has set up an External Loans Implementation Office to control project activities financed by international organizations. This Office comes directly under the General Administrator and will be the coordinating unit for project execution and the OSN's direct contact with the Bank.
- 4.03 The coordinating unit will receive direct support from the Engineering Office, which will provide technical supervision for execution of the works through its Works Department, and which must have the necessary staff to carry out the required inspections of the works (see Recommendations). The coordinating unit will also receive support for community promotion activities. It is recommended that prior to the first disbursement, evidence be submitted to the Bank that this unit has the authority and staff to adequately perform its functions (see Proposed Resolution).

##### C. Status of project preparation

- 4.04 Completed final construction designs, technical specifications, quantity estimates and a detailed budget including an analysis of unit prices are ready for the rehabilitation of the San Martín plant and the waterworks in the western zone. Bid documents for all the works are ready, and the borrower will submit them for Bank approval prior to letting the bids for each work (see Recommendations). The terms of reference for the sewerage study are given in Annex III-3 to the Project Report and meet the requirements for this kind of study.

D. Construction agreements and land availability

- 4.05 Most of the hydraulic works are underground and will be constructed on public roads. For the pumping stations and elevated tanks, the 10 small plots of land required have been identified. Seven of these lots are public property, and expropriation proceedings for the three that are privately-owned are at an advanced stage. However, it is recommended that prior to the issuance of the bid calls for the works, the Bank be given evidence of the legal possession of the lands, and prior to the first disbursement, that the Bank receive the agreements between the OSN and the municipalities in which the works will be built, to ensure that the rights-of-way on public roads and other necessary permits have been obtained (see Recommendations and Proposed Resolution).

E. Disbursement timetable

- 4.06 A disbursement timetable was prepared for each of the project components and has been consolidated by source of financing and includes financial costs, contingencies and escalation. A summary is given below:

(Equivalent in millions of US\$)

Source of resources	Y e a r					TOTAL	%
	1	2	3	4	5		
IDB loan	5.2	24.8	37.1	22.6	8.3	98.0	40
Local contribution	8.2	40.0	46.5	34.4	17.9	147.0	60
TOTAL	13.4	64.8	83.6	57.0	26.2	245.0	100
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Percentage	5.5	26.4	34.1	23.3	10.7	100	

F. Procedure for goods and services procurement

- 4.07 Goods and contracts for works to be built with project resources in amounts above the equivalent of US\$200,000 will be procured through competitive bidding and those financed in full or in part with resources from the proposed loan will be put to international competitive bidding (see Proposed Resolution). Consulting services will also be contracted in accordance with procedures already agreed to by the Bank and the OSN.

G. Ex post evaluation

- 4.08 The borrower, through the OSN, will submit the necessary initial baseline data not later than 24 months after the signature of the contract, and will carry out an ex post evaluation of the economic and social impact of the potable water project for the western zone following the methodology used in the ex ante project analysis (see Recommendations and Appendix III).

H. Operation and maintenance of the works

- 4.09 Owing to the process of institutional adjustment and the lack of funding, the company has not carried out a systematic program to renovate its trunk and distribution mains. In the metropolitan area of Buenos Aires, almost 100,000 instances of surface leakage are recorded each year, for losses in the order of 300 million cubic meters per year. The volume of water lost in the system represents 25% of the production of treatment plants and signifies a direct pumping and treatment cost in the order of US\$40 million per year. These losses are also due to the poor state of repair of the system, and it is estimated that it takes 30 days in the federal capital and 60 days in the districts from the time a leak is identified until it is stopped. Under the Operational Improvement Program to be financed by the World Bank, the OSN has included a component to analyze and evaluate losses, rehabilitate the most critical zones and improve management systems in the offices responsible for distribution, to reduce the waste mentioned above. In this regard, and as an integral part of the Bank's analysis, it has been considered indispensable to conduct a close follow-up on each component in this program, for which purpose the necessary contractual conditions have been established.
- 4.10 The Office of the General Manager for Operations and Maintenance, which has sufficient human and material resources, will be responsible for operating and maintaining the works to be built. This Office will also be fortified under the training component provided for in the project and the institutional strengthening that will be provided under the loan granted by the World Bank. However, because of maintenance problems in the OSN system, it is recommended that during the project execution period, reports on the maintenance of all of the works in the OSN water supply system be submitted to the Bank in accordance with the guidelines given in Appendix III, paragraph 8.01 (see Recommendations). It is also recommended that for 10 years following completion of each of the project works, the Bank monitor maintenance of the works constructed through the annual reports of the OSN to be submitted in the first quarter of each year (see Recommendations).

I. Water quality

- 4.11 Most of the existing distribution network has asbestos-cement pipes. In accordance with the Bank's environmental policies, it is recommended that a condition be incorporated into the loan contract requiring that, together with the annual reports on maintenance of the OSN systems, the results of representative tests of the quality of treated water be submitted to verify that the pH is balanced and that water with an acid pH which can dissolve the cement in the pipes and detach the asbestos fibers is not being delivered (see Recommendations).

J. Ecological and environmental aspects

- 4.12 The River Plate is the natural source of water for Buenos Aires, and the continuous extraction of water for public supplies has not affected and will not affect its ecological condition. Technical cooperation activities have been included in the project to continue the studies of the quality of treated water and to determine the best disinfection methods because of the potential problem that trihalo-methanes will be formed from the reaction between raw water with a high organic content and chlorine. Laboratory tests and results obtained by the OSN indicate that there is no danger at present. Nevertheless, the aforementioned studies will be continued as a precaution against any future changes in the quality of the natural water from the river.
- 4.13 The project zone has serious problems with the quality of water obtained from wells, since the groundwater source is gradually becoming exhausted, which has been reflected in a drop in the pressure levels of the aquifer and a reduction in output from public and private wells. The nitrate content has risen to levels more than twice the permissible maximum recommended by the World Health Organization. This situation illustrates the importance, from an environmental standpoint, of executing the water supply project proposed in this document.
- 4.14 The project area also requires public sewer systems for the population in both districts and for industries in the zone, some of which produce highly toxic waste that, in the absence of a sewer system, has converted Morón Creek into an open sewer, which runs untreated through the Reconquista River to the River Plate. To help improve sanitation in the area, the sewerage studies required if the OSN is to provide this service for the residents and industries in both districts have been included in this operation. The studies also include an analysis of industrial waste so that pollution in Morón Creek can be sharply reduced thus reducing the pollution that pours from it into the Reconquista River (see Recommendations).

V. THE EXECUTING AGENCY

A. Background

- 5.01 The executing agency would be Obras Sanitarias de la Nación (OSN) which has already been responsible for executing projects partly financed by the Bank. It is a decentralized public corporation that comes under the Department of the Secretary of Water Resources, coming under the Ministry of Public Works and Services. A General Administrator directs the corporation, aided by an Assistant General Administrator and three General Managers: one for Operations and Maintenance, one for Studies, Projects and Works, and one for Finance, Personnel and Services. These units are supported by 13



Management Offices among which mention should be made of the External Loan Implementation Office, which will act as the coordinating unit for the project recommended in this document.

B. Personnel

- 5.02 The General Administrator is responsible for setting personnel policies, with support from the Human Resources Office which deals with matters involving staff administration and development. In relative terms, the corporation's productivity measured by the number of accounts per employee is in the order of 220, a ratio that is considered low. The corporation's efficiency is affected by the high numbers and high average age of its staff and a high absentee rate. Nonetheless, productivity of OSN staff has improved in recent years due to the higher relative increase in the number of new accounts as measured against the average number of employees.

C. Financial and accounting administration

- 5.03 With regard to the OSN's accounting system, it should be noted that the system in use up to 1985 was not adequate for the corporation's purposes, since it did not fully reflect the applicable legal requirements, was not integrated with the budget system, and did not include a plan of accounts that would serve as a guide for the management in the decision-making process. The generalized unreliability of the information, due to gaps and flaws in the collection, recording and control systems, forced the Auditor General for State Corporations (SIGEP) to refuse to comment on the OSN's financial statements, a situation that continued until the financial year ending on December 31, 1985. Since 1986, steps have been taken to remedy this situation, a process that can only be completed in the extent to which progress is made in implementing the recommendations in the finance and accounting areas that result from the Operational Improvement Program.

D. Data processing, purchasing and inventory-control procedures

- 5.04 The institutional review brought out that there are deficiencies in data processing and in the procedures employed for purchasing and inventory control. In addition, there is overstocking of materials because of the reduction in the volume of operations that took place when the service area of OSN was reduced.
- 5.05 As a first step in solving the problems that affect data processing, the configuration of subsystems for the OSN management information system has been defined. Plans call for improving current purchasing and inventory control procedures by instituting new policies for materials management and a computer-based system for regular updating of stocks. Plans call for drawing down present stocks in order to correct overstocking.

- 5.06 The improvements mentioned above are part of the World Bank-financed Program for Improvement of Operations, which is described herein.

E. Commercial system

- 5.07 With regard to the OSN's commercial management, it was found that the lack of an up-to-date database (registry of users) frequently leads to under- and overbilling. There are also collection problems that lead to delays in classifying revenues and in crediting payments to clients' accounts. The problems described reduce the precision and reliability of the records on users' current accounts, which are virtually impossible to reconcile with the control accounts for general accounting. Also, out of approximately one million connections, only 20% have meters installed and only approximately 50% of these meters are read. The Operational Improvement Program addresses these fundamental commercial elements of the company's operations. This is supplemented with the recommendation that the proposed IDB loan contract require the borrower to approve, through the OSN, a new rate structure based on metered consumption, and install at least 400,000 meters, within 30 and 60 months, respectively, after the effective date of the loan contract.

F. Operational and management improvements

- 5.08 The need to take corrective action to remedy the OSN's organizational failings led the OSN to seek financing from the World Bank for partial funding of an Operational Improvement Program (OIP) which was included as part of loan 2641/AR, for a total of US\$16 million (the whole loan is for US\$60 million). The contract was signed in November 1986 and the term for executing the program has been estimated at four years. The OIP has been structured into 10 sub-programs: (1) inventory of systems; (2) pitometry; (3) work on mains; (4) rehabilitation and maintenance of operational units; (5) billings and collections; (6) registry of users; (7) customer metering; (8) system metering; (9) supplies; (10) financial and accounting administration system.
- 5.09 As can be seen, the OIP includes activities in the fields of services - subprograms 1 to 4; commercial matters - subprograms 5 to 7; facilities - subprogram 8; and financial and accounting administration - subprograms 9 and 10. The areas indicated do not include a general study of the structure of the OSN, its management information systems, staff administration, internal audit, and other matters, which will be dealt with by the Department of the Secretary of Water Resources and which, like the operational improvement, will be essential areas to improve institutional efficiency (see Recommendations).
- 5.10 To adequately coordinate execution of the project under consideration with progress in the activities included in the OIP, it is recommended that the potential loan contract include clauses that are to

be complied with as the relevant goals of that program are attained. It is recommended that as conditions precedent to the first disbursement, it must be demonstrated that the consulting company which will conduct the studies has been contracted; within the 12 months following the date on which the loan contract becomes effective, a plan of the steps that the OSN intends to take, relating both to the OIP and to management improvements, must be submitted to the Bank; and annually within the first 90 days of the year, the OSN must inform the Bank on progress in implementing the respective recommendations (see Proposed Resolution, Recommendations and Appendix III, Annex A).

G. Internal and external auditing

- 5.11 The combination and number of auditors in the General Auditing Department should make for adequate coverage of the responsibilities assigned. However, different factors restrict the unit's ability to comply with its work plan. The Department of the Secretary of Water Resources will consider this aspect in its study of how to reorganize and strengthen the management of the OSN with a view to improving the effectiveness of internal auditing to adequately supplement the Operational and Management Improvement Programs.
- 5.12 The Sindicatura General de Empresas Públicas (Office of the Auditor General for State Corporations) (SIGEP) is responsible for annual certification based on a report from the Auditing Committee made up of the Auditing Officer, the Legal Officer and the Management Control Officer. In recent years the SIGEP has been unable to obtain sufficient and adequate evidence to form an opinion on the reasonableness of the OSN's financial statements and therefore it has refrained from issuing an opinion. The scope and extent of the Operational Improvement Program, which covers the areas of finance and accounting, ensures that future improvements will be introduced to remedy the numerous structural defects that have prevailed in recent years. With regard to the operation under consideration, it is recommended that the OSN's financial statements during the life of the loan and those for the project during execution be submitted annually, duly audited by the SIGEP (see Recommendations).

H. Rates

- 5.13 At present, OSN rate increases are approved by the Ministry of Public Works and Services, based on the OSN proposals. Under the terms of OSN's articles of incorporation, rates are determined on the basis of the operating costs of the company at peak efficiency. However, the analysis of figures for past years shows that operating revenues have not been high enough to cover operating expenses, although from 1984 to 1986, revenues from the rates charged by the company have increased steadily. Preliminary figures for 1987 show that operating costs were covered.

- 5.14 Like other Argentine sanitation companies serving urban centers, the OSN does not base its rate system predominantly on metered service. Rates are set on the basis of the area, type, and location of the home and value of the land, among other factors, and this does not favor a rational use of water or discourage waste, particularly on the part of consumers with the highest incomes. The OSN recognizes that there is a need for substantial changes in the existing system, and for that reason it has begun a program to (a) install meters, (b) carry out a study to be used as a basis for a rate system based on metered consumption, (c) transfer part of the task of installing and reading meters to the private sector, through a concession system, and (d) make the institutional and structural adjustments needed for the aforementioned processes to operate smoothly. 1/
- 5.15 The obligations of the borrower, through the Department of the Secretary of Water Resources, and the OSN, pertaining to the above-mentioned measures, have been set out in the normative documents for this operation. These stipulations would be complemented with measures already agreed upon between the OSN and the World Bank and contained in the Operational Improvement Program.

I. Historical financial analysis

1. Background

- 5.16 As established in the charter under which it was organized, the OSN finances its budget out of ordinary and extraordinary resources. The former include income from the different services provided at rates approved by the Executive Branch; income from fines, surcharges and interest; revenues from sales of goods; and contributions from the National Treasury. Extraordinary resources are those deriving from the use of credit; state contributions for works of all kinds for which the corporation is responsible; contributions for works carried out for the account of third parties; and grants of all kinds. In the event net profits are obtained, their allocation will be decided by the Executive Branch based on the corporation's advice.
- 5.17 Because of the corporation's accounting management problems in recent years, it is impossible to make a formal technical analysis to determine its economic and financial performance. However, to give an idea of the magnitude of the corporation's turnover and its historical evolution, a summary analysis has been made of the information given in the financial statements. They have been adjusted to reflect certain of the SIGEP's comments.

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1/ The study to be used as a basis for establishing rates is part of the technical assistance called for in the operation.

## 2. Balance sheets

- 5.18 The structural analysis reveals a high incidence of non-current assets, including fixed assets which represent approximately 90% of the total. The most important item in current assets is accounts receivable from users, which as of December 31, 1986, amounted to 4.4% of total assets. According to recent studies conducted by the Commercial Management Office, collections are being managed acceptably since, overall, 86% of total billings are collected. In spite of this potentially acceptable performance, there are still large balances outstanding, which including surcharges and the pertinent monetary adjustments, as of December 31, 1986, amounted to approximately US\$64.1 million, and efforts have been stepped up to collect them or remove them from the books. It is recommended that the necessary contractual conditions be established to enable the OSN to cancel balances outstanding as of December 31, 1986, over a period not surpassing December 31, 1991. Follow-up on these collections will be made through the OSN's audited financial statements and the financial projections to be presented annually by the corporation, starting with those to be submitted as a prior condition to the first disbursement (see Proposed Resolution and Recommendations).
- 5.19 To allow for effective follow-up of collection management, the OSN will submit yearly analyses of the age of customer accounts receivable. With respect both to overdue accounts and accounts that will be receivable in future from both private and public-sector users, it is being recommended that a clause concerning accounts receivable be included in the loan contract whereby the borrower would agree not to let its collection ratio fall below 85% of all amounts owing, in a given year.
- 5.20 At the end of 1986, the OSN's total assets were the equivalent of US\$1.284 billion. Its own equity accounted for 90% of its financing (the equivalent of US\$1.163 billion). Its total liabilities of the equivalent of US\$121 million thus play a relatively small role (10%) in financing total assets. It is important to stress that a substantial portion of its liabilities, equivalent to approximately US\$59 million, represent external debt that is to be taken over by the government under the terms of a law governing the service of the nation's external indebtedness. Until that transfer takes place, the aforementioned equivalent of US\$59 million appears under both assets and liabilities on the OSN's balance sheet, as equivalent offsetting amounts.

## 3. Income statement

- 5.21 The OSN's rate system is not based on cost considerations or actual consumption, and therefore revenue performance had to be analyzed using data that could be assessed more objectively. In selecting those data it was taken into account that the OSN, when making calculations to set its rates, uses factors such as the covered area

of the building being serviced (it being assumed that the greater the area the more persons and the greater the consumption); the type, age, and location of the building; the lot area; the minimum rate that could be charged, and a rate adjustment coefficient. As its name suggests, this latter factor in the calculation is the factor that is adjusted to change a rate in light of changes that can arise in cost budgets, in actual costs incurred, in the rates charged for services performed by other entities, and in the general price level. It thus is possible to determine the OSN's rate behavior by tracing the performance of that adjustment coefficient, which is also known as the "K" coefficient, and relating it to changes in the Overall Wholesale Nonagricultural Price Index (PMNAT), which is widely used in Argentina. The relationship is shown in the following table.

<u>Year</u>	<u>Ratio K/PMNAT</u>
1980	100.00
1981	85.60
1982	43.63
1983	39.53
1984	42.84
1985	59.37
1986	86.52
1987	74.99

5.22 In the period analyzed, the annual percentage variations of the PMNAT were consistent with changes in the consumer price index. Accordingly, the uneven performance of the K/PMNAT ratio from 1981 to 1986 would reflect the evolution in both indexes. This means that the real rate - i.e., net of the effect of inflation - dropped by an average of about 25% in the last seven years, despite the steady recovery recorded between 1984 and 1987.

5.23 According to on available data, the OSN suffered operating losses during the period 1984-1986. These negative results made it necessary for the National Treasury to assist on a number of occasions, in an amount that the OSN has estimated at approximately US\$27 million over the period 1984-1986.

#### 4. Statement of source and application of funds

5.24 Internal generation of funds was negative over the period 1984-1986. Given this circumstance, external sources including contributions from the National Treasury were required to provide resources to finance applications, the most significant of which were investments in works. They included the La Matanza project partially financed with Bank resources.

## 5. Conclusions of the historical financial analysis

- 5.25 Based on the analysis conducted, it can be seen that in spite of its negative operating results, the OSN has been able to maintain a low level of indebtedness, although the National Treasury has had to come to its financial aid on different occasions. Problems were also identified including shortfalls in income from rates that were partially solved by the aforementioned contribution from the National Treasury; the systematic postponement of expansion and rehabilitation works; and major constraints on system operations and maintenance. In 1984, however, rate levels began to recover, which has made it possible to determine that today, the Bank's minimum policy requirements are being met. The increase in metering and a drop in losses due to leakage in the system will make it possible to improve the corporation's earnings and increase its efficiency.

## VI. JUSTIFICATION

### A. Technical feasibility

- 6.01 The water supply project for the western zone, which also includes the rehabilitation and expansion of the San Martín treatment plant, has been prepared in accordance with generally-accepted technical criteria, and both components represent the least-cost technical alternative. Final designs are available for construction and, accordingly, the works can begin as soon as financing is approved. The five-year project timetable can feasibly be adhered to, based on national experience with this kind of work, and the cost of the project has been estimated based on final designs for which quantity estimates, unit price analysis, construction specifications and work plans have been prepared; therefore, the figures are considered to be reliable.
- 6.02 The proposed plan and methodology for executing the works, as well as the proposed organizational structure and staff of the supervisory units, will make it possible to comply adequately with the construction plans.
- 6.03 The project provides for conducting the studies required to install a sewer service in the western zone, including treatment of domestic and industrial waste. By executing the works recommended in these studies, it is expected that a substantial improvement can be made in existing levels of environmental pollution in the area, which will help clean up the environment of Morón Creek, the Reconquista River and the River Plate.
- 6.04 In short, technical and environmental aspects have been taken into account in designing the project, and it can be concluded that from the technical viewpoint this is a well-conceived project that can be executed and operated without difficulty.

B. Financial feasibility

- 6.05 With regard to the feasibility of the local contribution to the investment plan, the analysis of the OSN's projected financial performance up to 1996 indicates that, especially during the project execution period, internally-generated resources, net of debt service, will be insufficient to finance the total investment program and working-capital requirements. Annual deficits of funds will be produced which, accumulated to 1992, the date on which the project under consideration will be completed, will be equivalent to US\$82.8 million, of a total of US\$765.4 million planned for construction and working capital. This 10.8% deficit can eventually be reversed through rate increases, partial financing of the construction program through loans, participation of the private sector in the OSN expansion plan through special concession arrangements, postponing certain works, assistance if needed from the National Treasury, or through a suitable combination of these measures. The means of making up the possible deficit must be clearly specified and quantified in financial plans to be submitted annually by the OSN for carrying out the corporation's investment program over the next five years. The first plan must be submitted to the Bank as a prior condition to the first disbursement (see Proposed Resolution and Recommendations).
- 6.06 Given the projected financial situation of the executing agency, it is also recommended that a clause be included in the prospective loan contract whereunder the OSN must present during the project execution period and within the first 60 days of each calendar year, a report updating the investment plan submitted as a prior condition to the first disbursement, and projections in constant dollars of statements of income and of source and application of funds, and balance sheets, covering a period of at least five years, prepared according to models agreed to with the Bank (see Recommendations). These projections must be adequately supported by the basic information used to formulate them, and by detailed and complete reports on how each of the items were calculated, and accompanied by comments and explanatory notes that facilitate their interpretation, especially with regard to financing the construction program and the manner in which the deficit will eventually be absorbed. Information will also be submitted on the last two financial years, also expressed in constant dollars, and comparable and compatible with the financial projections, together with a description of measures taken during the period to improve the OSN's economic and financial situation, including rate increases, loans contracted (including their financial conditions), and similar items.
- 6.07 With respect to the proposed rate clause for this operation, in the projected results that were prepared on the assumption that rates would maintain their real value in the future, it was shown that the Bank's rate policy can be complied with, since it is possible to totally cover operating costs, including depreciation, and sufficient funds would be generated to perform all of the financial obligations



of the OSN, whose debt ratio presently is low, and to cover a substantial percentage of its investment program. Accordingly, it is recommended that a rate clause requiring that operating costs be covered, that sufficient resources be generated to comply with financial commitments, and that rates contribute no less than 35% to financing investments in each year be included, since based on the above, no problems are expected to arise with compliance (see Proposed Resolution and paragraph 7.01 of Annex A).

- 6.08 According to the projections, the future income to be earned by the OSN will make for an acceptable return on net worth, especially in the light of the company's historical experience, and will reach values close to 5% over the projected period.

C. Institutional capacity

- 6.09 The OSN has conducted feasibility studies, planned and executed or supervised different works involving potable water supply and sanitation throughout the entire Republic of Argentina. In 1980, its jurisdiction was limited to the city of Buenos Aires and the so-called Greater Metropolitan Area.
- 6.10 The largest works in its present service area include the General San Martín and General Belgrano water treatment facilities, a large network of underground watercourses, the related pumping stations, and all types of supplementary structures necessary to operate the systems, and last, works involving sanitation. In addition, the corporation currently possesses total assets estimated as equivalent to US\$1.2 billion, it bills approximately US\$220 million per year, and services approximately 5.5 million people with potable water, all of which indicate its capacity and experience in executing physical works.
- 6.11 In the administration and accounting fields, however, the corporation did not keep pace with this development, and many maladjustments arose in its organizational structure in addition to operational inefficiencies that affected almost all of its operating areas. To solve these problems, the OSN has begun an ambitious Operational Improvement Program, whose scope and depth will strengthen the corporation's management, in accordance with adequate guidelines for effectiveness and efficiency in the administrative, financial, technical and commercial fields. In addition, during negotiations with Argentinian authorities, it was agreed to include in the potential loan contract the clauses required to achieve the institutional strengthening of the corporation in the organizational and management areas. To this end, the SRH will, within 12 months after the effective date of the loan contract, submit a diagnosis of the situation of the OSN in the areas of organizational structure, management information systems and decision-making, staff administration policy, and internal audit requirements (see Proposed Resolution and Recommendations). The foregoing, and the OSN's experience in conducting projects similar to the one proposed here, make it possible to assume that no significant institutional problems will hamper project execution.

D. Socioeconomic feasibility

1. Water supply in the western zone

(a) Costs

- 6.12 The costs of the potable water project for Morón and Tres de Febrero for engineering, direct costs and contingencies were adjusted so they could be expressed in border prices. To do so, taxes were eliminated, a conversion factor of 0.54 was used for unskilled labor, 0.59 for electric power, plus a standard conversion factor of 0.83. Once these adjustments were made, an economic cost of US\$136.7 million was determined, which compares with the cost at market prices of US\$170.1 million.

(b) Benefits

- 6.13 The benefits of the project derive essentially from two factors: first, replacement of water sources (wells) by the OSN surface water distribution network; and second, the consumer surplus that corresponds to additional water consumption. To correctly evaluate these benefits, the western zone was divided into three areas defined in function of the depletion and pollution levels of the groundwater that would be replaced in each.
- 6.14 Zone 1 includes areas that presently have major problems with the quality and quantity of available groundwater. Unless the project is carried out, the consumers that use individual wells will be forced to have recourse to tanker trucks. The OSN will also be compelled to replace its groundwater source with a very costly water transport system. Zone 2 includes areas which over the medium term (approximately 10 years) are expected to have problems with the capacity and quality of groundwater sources. The benefits come from the savings in cost obtained by replacing wells with a more economical source. Zone 3 includes areas that have no problems with groundwater capacity or quality. The benefits of the project derive exclusively from the savings of resources obtained by replacing this source.

(c) Results and sensitivity analysis

- 6.15 The economic evaluation indicates the advisability of carrying out the project, since the internal economic rate of return (IERR) is much higher than 12% for the three project zones, as indicated in the following table:

<u>Western Zone Project</u>			
<u>Present Value (at 12%, in thousands of US\$) and IERR</u>			
	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
Net value	204,440	8,758	21,033
Internal rate of return	42.7%	15.3%	23.1%

- 6.16 The results of the sensitivity analysis given in the following table for each zone, indicate that the IERR for the project is above 12% even when the values of the most important project parameters are changed. This analysis also shows that the IERR is not very sensitive to the value of price elasticity, which was the most difficult parameter to evaluate and which was adopted as an assumption.

Western Zone Project  
Sensitivity Analysis

		IERR (%)		
		Zone 1	Zone 2	Zone 3
Price elasticity	+ 25%	40.0	14.1	21.9
	- 25%	45.4	15.9	24.3
Initial water consumption	+ 20%	48.6	17.0	26.7
	- 20%	35.2	12.2	19.2
Rate of increase in water demand	+ 20%	48.6	17.0	26.7
	- 20%	35.2	12.2	19.2
Savings by replacing the source	+ 20%	49.3	18.2	26.9
	- 20%	35.6	12.2	19.0
Investment	+ 20%	37.1	12.8	19.9
	- 20%	50.5	18.8	27.6

2. Rehabilitation and extension of the San Martín plant

- 6.17 For the economic analysis, in addition to the cost of this project, it was necessary to consider all the investments required to distribute the additional water produced as a result of the project. Just as for the western zone, the project benefits come essentially from replacing one water source (wells) with another and from the consumer surplus that corresponds to additional water consumption. Also, the plant rehabilitation project will lead to major savings in the order of US\$1,800,000 per year in economic value, due to the drop in the consumption of coagulant that would be achieved by using the planned coagulant dosing system.
- 6.18 Current demand by users connected to the system is very close to plant capacity (losses deducted). Natural population growth of 0.4% per annum was considered, in accordance with the OSN's 10-year plan. The project will permit 2,132,118 users, who currently receive water from underground sources, to be connected to the system, at a rate envisaged in the 10-year investment plan. The cost of water sources in the "without project" situation and the demand-price elasticity values are identical to those used to evaluate the western zone.
- 6.19 The economic evaluation indicates the advisability of carrying out the project, since the IERR is well above 12%, as indicated in the following table.

San Martín Plant Project  
Present Value at 12% and IERR  
(thousands of US\$)

Net value	750,501
Internal rate of return	40.8%

- 6.20 The results of the sensitivity analysis presented in the following table indicate that the IERR for the project continues to be above 12%.

San Martín Project  
Sensitivity Analysis

		<u>IERR (%)</u>
Price elasticity	+ 25%	40.9
	- 25%	40.7
Initial water consumption	+ 20%	46.2
	- 20%	34.8
Rate of increase in the demand for water	+ 20%	46.2
	- 20%	34.8
Savings by replacing the source	+ 20%	46.2
	- 20%	34.7
Investment	+ 20%	35.9
	- 20%	47.4

- 6.21 It should be mentioned that 97.8% of the project benefits come from incorporating new users; therefore, they are dependent on implementation of the OSN's 10-year investment plan. To evaluate the impact of a possible delay in carrying out this plan a simulation was made considering a delay of five years in the program to incorporate new users (other than those in the western zone). In this case, the IERR drops to 31.2%.

3. Measurement of distributive impact

- 6.22 Distributive impact (DI) was measured by looking at the portion of benefits going to low-income consumers and unskilled workers out of the total benefits to the private sector. The results obtained show that 44% of the benefits go to low-income sectors.

VII. RECOMMENDATION

- 7.01 For the foregoing reasons, the project is considered feasible from the technical, economic, financial, institutional and legal viewpoints. Accordingly, it is recommended that the proposed loan be approved, to which end the following normative documents are being submitted to the Board of Executive Directors for its consideration:

- Proposed Resolution (OC)
- Recommendations
- Description of the Project (Annex A to the loan contract)

PROPOSED RESOLUTION

ARGENTINA. LOAN /OC-AR TO THE NACION ARGENTINA <sup>1/</sup>  
(Water Supply Project for the Western  
Zone of the City of Buenos Aires)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Nación Argentina, as borrower, for the purpose of granting it a loan to cooperate in the execution of the Water Supply Project for the Western Zone of the City of Buenos Aires. This financing shall be subject substantially to the following conditions:

1. Amount and Currencies: Up to US\$98,000,000, or the equivalent in other currencies (except that of Argentina) which are part of the ordinary capital resources of the Bank, to pay for goods and services acquired through international competition in the member countries of the Bank and for such other purposes as may be specified in the loan contract. Payments of amortization and interest shall be made in the currency or currencies specified by the Bank, in a quantity equivalent to the corresponding amount owed, calculated in units of account in terms of dollars of the United States of America, in accordance with provisions to be included in the loan contract.
2. Source of Funds: The ordinary capital resources of the Bank.
3. Guarantee: The general responsibility of the borrower.
4. Credit Fee: 1-1/4% per annum on the undisbursed portion of the financing, commencing to accrue 60 days after the date of the contract and payable in dollars of the United States of America on the same dates as the interest.

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<sup>1/</sup> The provisions contained in this Appendix and in Appendices II and III shall only become final when the Board of Executive Directors has approved the loan proposal.

5. Amortization: The borrower shall amortize the loan in a period of 25 years from the date of the contract, by means of semiannual, consecutive and, insofar as possible, equal installments. The first installment shall be paid six months after the date scheduled for the last disbursement of the financing. The Bank may credit the amortization installments proportionally to the outstanding balance of each of the portions of the loan which accrue different rates of interest.
6. Interest: The borrower shall pay interest semiannually on the outstanding balances of the loan. The first payment shall be made six months after the date of the loan contract. During the disbursement period, the Bank: (a) shall determine the rate of interest to be applied as of the first day of January of each year and for the life of the loan to any amount disbursed during the ensuing year; and (b) may modify the interest rate, in accordance with the policy of the Bank, to be applied to disbursements of the loan made during the second half of the year. At the request of the borrower, resources of the financing may be used to pay interest during the period of disbursement thereof.
7. Disbursement: The term for disbursement of the financing shall expire 5 years after the effective date of the contract.
8. Special Conditions:
  - (a) The resources of the loan shall be utilized in their entirety by the borrower, through the company Obras Sanitarias de la Nación (OSN) as executing agency. If modifications in the legal provisions or the basic regulations concerning the OSN are approved which, in the opinion of the Bank, may substantially affect the project, the Bank shall have the right to require the borrower and/or the OSN to provide explanatory and detailed information in order to determine whether such modification or modifications may have an adverse impact on the execution of the project. Only after hearing the borrower and/or the OSN and assessing its information and clarifications may the Bank take such measures as it deems appropriate, in accordance with provisions to be set forth in the loan contract.
  - (b) The resources of the loan shall be used to participate in the execution of a project estimated at the equivalent of US\$245,000,000. Consequently, the loan contract shall contain appropriate provisions to ensure that such resources as may be necessary, in addition to the loan, for the complete execution of the project shall be duly provided, in an amount estimated at the equivalent of US\$147,000,000, in accordance with a schedule of investments satisfactory to the Bank.
  - (c) Prior to the first disbursement of the financing, the borrower, through OSN, shall submit to the Bank's satisfaction:

- (i) evidence that the necessary legal steps have been taken to ensure that OSN will assume the obligations it will be required to perform as executing agency for the project, and that the borrower will transfer to OSN as a loan, on terms and conditions similar to those of this financing, the proceeds of the loan that are to be used for the project;
  - (ii) evidence that the coordinating unit for the project has been duly established and provided with the proper staff, and that the staff members have been assigned the duties necessary to perform their work;
  - (iii) evidence that OSN has signed agreements with the Municipalities of Tres de Febrero and the Morón so that OSN may execute the project;
  - (iv) evidence that OSN has contracted for the study of the Operations Improvement Program; and
  - (v) a financial plan setting forth the measures that will be needed so that OSN shall have available as required the resources to carry out its investment plan for the next five years.
- (d) The borrower shall take appropriate measures acceptable to the Bank in order that the rates for all of OSN's systems generate revenues at least sufficient to cover all the operating expenses of those systems, including those related to administration, operation, maintenance, and depreciation. If the application of the foregoing does not generate sufficient resources to cover the timely service of all of the obligations of OSN and a proportional share of the investment plan, the necessary measures, which may include rate increases, shall be taken to obtain the additional resources required to achieve that purpose.
- (e) In the acquisition of machinery, equipment, and other materials for the project, and in the awarding of construction contracts, the system of public bidding shall be used in each case in which the value of such acquisitions or contracts exceeds the equivalent of US\$200,000. The bidding shall be subject to the procedures to be appended as an annex to the loan contract.
- (f) The Bank shall establish such inspection procedures as it deems necessary to assure the satisfactory execution of the project, and the borrower shall extend all cooperation which is required for the most effective accomplishment of this purpose. From the amount of the financing the sum of US\$980,000 shall be allocated for credit to the general income accounts of the Bank to meet expenses of general inspection and supervision.

RECOMMENDATIONS

- A. It is recommended that the following conditions, to be met to the Bank's satisfaction, be included in the loan contract in addition to the conditions set forth in the proposed resolution:
1. Unless the Bank agrees otherwise, the borrower, through the executing agency, shall submit the following to the Bank before initiating each call for public bids or, if no call for bids is to be issued, before the initiation of the works: (a) the general plans, specifications, budgets, and other documents necessary for construction, and, where applicable, the specific bidding conditions and other documents necessary for the call for bids; and (b) in the case of construction projects, evidence that it has legal possession of the lands on which the works are to be built or other pertinent rights thereto.
  2. Before signing the contract for each construction project, the borrower, through OSN, shall demonstrate that the staff necessary for inspection of the project has been appointed and that it has the necessary facilities and equipment for that inspection work.
  3. Within 120 days after the end of each fiscal year, during the life of the loan contract, the borrower, through OSN, shall submit to the Bank: (a) an analysis of the age of accounts receivable by OSN as of December 31 of each fiscal year from private sector customers, following the format agreed upon with the Bank, and also, no later than 1992 and thereafter, of accounts receivable from government customers; and (b) the evidence that at least 85% of the amounts owed during the last calendar year covered in the analysis have been collected, including the outstanding balance at the start of the year for OSN services. For this purposes, "amounts owed" shall not include accounts receivable for which the standard payment term has not yet elapsed, nor the balances of accounts owed as of December 31, 1986, which OSN shall undertake to remove from its books before December 31, 1991. The first report, when applicable, shall necessarily include the analysis and the evidence corresponding to the period ending December 31, 1988.
  4. Within the first 60 days of each fiscal year during the period of execution of the project, beginning in the second year after the date of the loan contract, the borrower, through OSN, shall submit to the Bank a report prepared following the methodology agreed upon with the Bank, containing the updated investment program and OSN financial projections for the next five years, including information on planned sources of financing and the action that is to be taken to secure



that financing. The report shall be accompanied with comparative data and comments on the implementation of the financial plan during the previous year. The first report, when applicable, shall necessarily include the update and financial projections corresponding to the fiscal year beginning in 1989.

5. Within 12 months after the effective date of the loan contract, the borrower, through OSN, shall submit to the Bank a meter installation program providing for at least 400,000 new meters to be installed in the 60 months following the effective date of the loan contract.
6. Within the first 90 days of each calendar year during the period of execution of the project, beginning in the third year after the date of the loan contract, the borrower, through OSN, shall submit to the Bank, a detailed report on the implementation of the recommendations referred to in paragraph 8 of this Appendix, with specific reference to the progress achieved in the meter installation program mentioned in paragraph 5 of this Appendix.
7. The borrower, through the Secretaría de Recursos Hídricos (SRH) and OSN, shall undertake to adopt the necessary measures within its jurisdiction to complete the cleanup program in the project area. To this end, it shall present to the Bank:
  - (a) within 12 months from the effective date of the loan contract:
    - (i) a report containing the studies, analysis of alternatives and basic designs for the construction of the sewerage works for the districts of Tres de Febrero and Morón which shall include the gathering of the industrial and human waste, its treatment and final disposal in the Reconquista River, in accordance with terms of reference previously agreed upon with the Bank; and
    - (ii) a diagnostic on the major sources of industrial pollution of the Arroyo Morón and the measures which shall be adopted to guarantee that the quality of the effluents of the industrial plants located in the area of the project shall be consistent with the level of treatment provided for in the final designs for the sewerage system; and
  - (b) within 30 months from the effective date of the loan contract, the final project for the sewerage works and treatment facilities for the effluents described in the preceding paragraph (a) with its respective financing plan and timetable for the execution of the pertinent works.
8. The borrower, through the SRH, shall undertake to present to the Bank, within 12 months from the effective date of the loan contract:
  - (a) a report on the results of the diagnosis on: (i) the Operations Improvement Program and timetable for implementation of the actions to be taken; and (ii) improvements in the management of OSN which shall include an analysis of at least the organizational structure, management information systems,

decision-making procedures, administrative and personnel policies, and requirements for internal auditing; and

- (b) a timetable, previously agreed upon with the Bank, for the implementation of the pertinent recommendations stemming from the aforementioned diagnostic in subparagraph (a)(ii).

9. The borrower, through OSN, shall submit to the Bank:

- (a) within 24 months after the effective date of the loan contract:
  - (i) the baseline data indicated in paragraph 4.01 of Appendix III, and (ii) a description of the system that is to be used to compile and process data for the annual comparisons with the baseline data to evaluate the results of the project; and
- (b) at the end of the third year after the date of the last disbursement of the financing, an ex post evaluation report on the results of the project, following the methodology and guidelines referred to in Chapter IV of Appendix III.

10. Within 36 months after the effective date of the loan contract, the borrower, through OSN, shall demonstrate to the Bank that a new rate structure based on metered service has been approved.

11. The borrower, through OSN shall: (a) undertake to ensure that each of the project works will be maintained in accordance with generally accepted technical standards for 10 years following its completion; and (b) submit to the Bank for its consideration, within the first quarter of each calendar year for 10 years after the project is completed, a report describing the state of upkeep of the project works, in accordance with the provisions outlined in Chapter VIII of Appendix III.

12. Within the first 90 days of each year during the period of execution of the project, the borrower, through OSN, shall submit to the Bank: (a) the results of the representative water-quality analyses of water treated at the San Martín and Belgrano plants, with specific reference to the findings of the acidity analyses to show that the pH balance is being maintained at all times, and (b) a report on the maintenance of all OSN systems, as indicated in paragraph 8.01 of Chapter VIII of Appendix III.

13. The financial statements of the project, during its period of execution, and of OSN during the life of the loan contract, shall be submitted to the Bank each year audited by the Sindicatura General de Empresas Públicas, in accordance with requirements satisfactory to the Bank.

B. The loan contract shall include an annex substantially of the tenor of Appendix III ("The Project").

## THE PROJECT

(Annex A to the Loan Contract)

### I. Object and Goals

- 1.01 The object of the project is to complete the public water supply system serving households in the districts of Tres de Febrero and Morón in the province of Buenos Aires, by replacing the current groundwater supply source with surface water treated at the San Martín water treatment plant. The project shall also assist in expanding the customer metering program and shall complement the institutional strengthening of OSN.

### II. Description of the Project

- 2.01 The construction and installation works and the supplementary activities that shall constitute the project are outlined in the following paragraphs:

#### (a) Works for the Basic Water Supply Project for the Western Zone

- (i) An underground watercourse approximately 16.5 kilometers long shall be built to supply the Tres de Febrero and Morón pumping stations from the Saavedra pumping station.
- (ii) Two pumping stations shall be installed, one in Tres de Febrero and the other in Morón, with pumping equipment, elevated tanks, chlorination chambers, and the required support facilities.
- (iii) Two interconnecting lines shall be built, one in Tres de Febrero and one in Morón, to supply seven elevated tanks holding 1,300 cubic meters each.
- (iv) About 420 kilometers of distribution mains will be laid.
- (v) Systems of service mains using pipes with a diameter of 75 millimeters shall be set in place for the installation of approximately 144,000 house connections, with meters.

#### (b) Works to Rehabilitate and Expand the San Martín Plant

The treatment plant shall be expanded and modernized through the

reconditioning of two flocculating/sedimentation units, the rebuilding of three rapid filters, the installation of three Parshall flumes, and connections, meters, and drainage structures for the renovated facilities. A new chemical feeder system shall also be installed.

(c) Meters in Different Areas Served by the OSN System

Approximately 60,000 meters shall be installed on existing service connections in different sections of the distribution system.

(d) Supplementary Activities

- (i) Community Information. OSN shall carry out a program to motivate, inform, and organize groups of future users of the project facilities so that they shall join rapidly in the organized process of connecting customers to the new water supply system, and so that the investment in service mains shall be recovered.
- (ii) Technical Cooperation. A research and training program shall be offered for OSN staff in priority technical areas relating to the project, such as: (1) the operation of treatment plants; (2) groundwater supply structures; (3) water quality control and disinfection and laboratory; (4) recovery of sludge from the treatment plant; (5) environmental matters relating to water contamination; and (6) rate-setting.
- (iii) Sewerage Studies and Project. Feasibility studies shall be carried out in the districts of Tres de Febrero and Morón, and final designs prepared, for the development of an investment project dealing with the collection and treatment of household and industrial wastes and final disposal of sewage.

III. Cost and Financing of the Project

- 3.01 The total cost of the project is estimated at the equivalent of US\$245,000,000. A breakdown of the budget by investment category and source of funds is given in the following table.

(in thousands of U.S. dollars)

<u>Investment Category</u>	<u>IDB</u>	<u>LOCAL</u>	<u>TOTAL</u>	<u>%</u>
1. <u>Engineering and Administration</u>	-	13,000	13,000	5.3
1.1 Engineering	-	4,000	4,000	
1.2 Supervision	-	5,700	5,700	
1.3 Administration	-	3,300	3,300	
2. <u>Direct Costs</u>	62,300	96,700	159,000	64.9
2.1 Underground watercourse	14,800	12,500	27,300	
2.2 Pumping stations	5,700	5,500	11,200	
2.3 Interconnecting lines	7,400	5,000	12,400	
2.4 Distribution mains	16,600	11,000	27,600	
2.5 Elevated tanks	1,700	1,110	2,800	
2.6 San Martín treatment plant	12,700	13,500	26,200	
2.7 Service mains	-	28,500	28,500	
2.8 Meters and connections	3,400	19,600	23,000	
3. <u>Associated Costs</u>	500	5,200	5,700	2.3
3.1 Land	-	1,400	1,400	
3.2 Technical cooperation	500	300	800	
3.3 Western B.Aires sewerage studies	-	2,000	2,000	
3.4 Community information	-	1,500	1,500	
4. <u>Unallocated</u>	16,561	29,187	45,748	18.7
4.1 Contingencies	6,285	11,465	17,750	
4.2 Escalation	10,276	17,722	27,998	
5. <u>Financial Expenses</u>	18,639	2,913	21,552	8.8
5.1 Interest	17,659	-	17,659	
5.2 Commitment fee	-	2,913	2,913	
5.3 IDB inspection	980	-	980	
T O T A L	98,000	147,000	245,000	100.0
Percentage	40.0	60.0	100.0	

#### IV. Ex Post Evaluation

4.01 The data to be provided in accordance with paragraph 9 of the Appendix II shall be as follows:

- (a) Population of the project's area, number of connections (OSN and neighborhood systems), and number of individual wells.
- (b) Projections of the population of the project's area, connections, and future demand for water.
- (c) Water use by major customer classification (residential, industrial, commercial and public sector), including the public water

supply system and other possible water sources (using hand or motor-driven pumps).

- (d) Capacity of groundwater resources available in each of the project zones for consumption by users with individual wells.
- (e) Existing rate structure, and billings for a two-month period, classified according to that structure.
- (f) Cost of producing water and operating and maintaining the water distribution system in the project area (fixed and variable costs) and cost to the user of water supplied by each other source.
- (g) Measurement of production and estimates of water unaccounted for.
- (h) Quality of water obtained from the system and from other existing sources. The data must be presented in such a manner as to allow for an analysis of the extent to which guidelines recommended by the WHO are being adhered to, and shall cover water entering the distribution network and water delivered to customers.
- (i) Excreta disposal data.
- (j) Any other indicators identified that might signify nonquantifiable benefits of the project.

4.02 Annual data shall be assembled for the same categories outlined for the baseline data. For any category in which it may not be pertinent to require data every year, information shall be provided: (a) whenever a major change occurs, and (b) for the last year of the evaluation period.

4.03 The methodology used for the evaluation shall be similar to the methodology used in the ex ante appraisal. Data shall refer to the specific area of the basic project (three zones of the districts of Tres de Febrero and Morón). Samples that are statistically representative of the three zones shall be used for data on water consumption by source, and on production costs referred to in subparagraphs 4.01(c) and (f) respectively. For the San Martín water treatment plant project, data shall be provided on: (a) production; (b) total costs, broken down into operating and maintenance costs; (c) unit production costs; and (d) quality of the water produced. The evaluation report shall contain: (i) a cost-benefit analysis of the project; (ii) an analysis of the distributive impact of the project; (iii) an analysis of other relevant sociocultural effects; and (iv) recommendations and conclusions. In the analyses specified in the foregoing subsections (i) and (ii), the IDB's Guidelines for the Evaluation of Potable Water Projects (Special Papers on Project Analysis, Nos. 4 and 5) shall be followed.

V. Procurement and Contracts

- 5.01 When the goods or services which are to be purchased or for which contracts are to be let are financed in whole or in part using foreign exchange from the financing, the procedures and the specific bidding conditions for the call for bids or other form of purchase or letting of contracts must permit the free competition of goods and services originating in the Bank's member countries, including those relating to any means of transport. Accordingly, no conditions may be imposed in such procedures or specific bidding conditions that might limit or restrict the offering of goods or the participation of contractors from those countries.

VI. Consulting Services

- 6.01 (a) In the selection and hiring of consultants whose services are to be financed in whole or in part using the resources of the financing: (i) the procedures agreed upon with the Bank must be followed; and (ii) no conditions may be imposed and no provisions made that would preclude or restrict the participation of consultants from the Bank's member countries.
- (b) When consulting services are to be financed using the local counterpart resources, the borrower must submit to the Bank for approval, before finalizing any consulting contract, the names of the individual consultants or consulting firms selected, the terms of reference for their appointment, and the fees agreed upon.

VII. Rate Provision

- 7.01 The proportional share of the investment plan that is to be covered by OSN's operating revenues, referred to in Clause 8(d) of Appendix I, must be at least 35% of the total investments. The percentage shall be determined by comparing net internal generation of funds with the total construction program, including financial expenses for the program. "Internal generation" shall be understood to mean total operating revenues less operating expenses, before deductions for depreciation and amortization, financial expenses, and nonoperating items, plus figures for surcharges levied for excess metered consumption, block water sales, partial emissions and penalties.

VIII. Maintenance

- 8.01 The annual maintenance reports referred to in paragraphs 11 and 12 of Appendix II must be submitted to the Bank within the first quarter of each calendar year. These reports shall contain at least the following information:
- (a) the organization to be used for maintenance;
- (b) the human, financial, and physical resources required for the maintenance work planned for each year;

- (c) the follow-up procedure to be used and the purpose, frequency, and scope of the maintenance sessions programmed;
- (d) in the second and subsequent annual reports, an evaluation of the maintenance plan carried out the previous year; and
- (e) a table showing the Langelier index for the most critical day of each month of the previous year, to monitor the acidity of the water produced at the San Martín and Belgrano plants.

**IX. Operations Improvement Program**

- 9.01 OSN's Operations Improvement Program, which is referred to in paragraph 8(c)(iv) of Appendix I and paragraphs 6 and 8 of Appendix II, consists of: (a) a diagnosis of the company's situation; (b) the design of the Program; and (c) the implementation of measures by OSN.
- 9.02 The object of the Program, which shall take four years to implement, is to improve the operation of the service and administrative procedures in the following areas: (a) systems register; (b) flow and pressure measurement; (c) system maintenance; (d) rehabilitation and maintenance of operating units; (e) system-wide metering; (f) customer metering; (g) water supply; (h) customer register; (i) billing and collections; and (j) financial and accounting administration.
- 9.03 This Program shall be carried out by OSN under its responsibility, at the same time as the project.