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ARGENTINA

URBAN AND RURAL WATER SUPPLY SYSTEMS PROGRAM

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PROJECT REPORT

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ARGENTINA

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I. INTRODUCTION

A. Background

- 1.01 At the request of the Ministry of the Economy, an IDB orientation mission visited Argentina in February 1976 to review the studies and preliminary designs of a water supply and sewage-disposal program which contained rural as well as urban projects.
- 1.02 On December 8, 1976 the Argentine Government furnished the Bank with documentation about a program that contained a rural water supply and sewage-disposal subprogram as well as an urban water supply sewage-disposal subprogram.
- 1.03 In discussions with the IDB programming mission that visited Argentina from February 28 to March 4, 1977, the Argentine authorities restated their interest in having the Bank take part in financing the rural and urban water supply programs presented. They pointed out furthermore that the facilities would enhance and lend considerable support to the policy of revising rate-schedules and to effective implementation of the water-meter policy adopted by the government to improve services. It was agreed in the conversations to eliminate the sewage-disposal part and to send an IDB analysis mission later on to define the objectives of the rural program and the character of the eventual IDB participation in the urban subprogram.
- 1.04 Pursuant to this understanding, an analysis and negotiation mission was sent to Argentina at the end of March last to complete the essential information necessary to study the operation, evaluate the institutional and operating bases called for in the program, and gather information about possible beneficiaries. The recommendations and conclusions of the studies were based on the information obtained by that mission and are summarized herein.

B. Priority

- 1.05 The program was placed on the list of projects that might be considered by the Bank in 1977, according to the scheduling agreed upon with the Argentine authorities. By note of April 28, 1977, the Ministry of the Economy restated to the Bank the Argentine Government's interest in having the Bank consider joint financing of the urban and rural subprograms.

II. FRAME OF REFERENCE

A. Introduction

- 2.01 Argentina is one of the more economically developed countries of Latin America. Her per capita income was US\$1,590 in 1976. Favorable distribution of income at this level allowed the formation of a large urban middle class which is the base of her social structure. Argentina is a highly urbanized country. The urban population accounts for more than 80% of the total population and almost 50% of it is concentrated in the Greater Buenos Aires metropolitan area.
- 2.02 In spite of her high standard of living and income, Argentina is behind other countries of the continent in supplying sanitary drinking water services to the public. According to a recent report from the Pan American Health Organization, Argentina is in eleventh place among 23 Latin American member countries of the Bank with regard to the share of urban population furnished residential running water services.
- 2.03 Owing to this deficiency, infant mortality in Argentina has increased considerably in the unserved areas. A national average of 63 deaths per 1000 live births exceeds the continental average of 60 deaths per 1,000 live births. This rate is higher in Jujuy at 133 deaths per 1,000 live births; in Salta at 130, in Neuquén at 108, in Río Negro at 95, and in Catamarca at 74. Due to the same cause the incidence of waterborne gastrointestinal diseases (amebiasis, bacillary dysentery, etc.) is twice that of other countries of the continent with comparable data.

B. Geographic Distribution of Drinking Water Services

- 2.04 The geographic distribution of drinking water services throughout the country is furthermore irregular, in terms of served population as well as in the quality of service. 1/ In the country as a whole about 43% of the total population and 34% of the population living in communities of more than 100 persons have no access to potable water supplies. In so important an area as the suburbs of the Buenos Aires conglomeration, which have a population of more than 5 million people, 53% of the population have no service at all.
- 2.05 In the rural areas the shortage is much worse. Argentine official statistical data show that 49% of people living in communities of 500 to 10,000 population lack water service. Among communities of 100 to 500 population, 84% lack water service.
- 2.06 These limitations in population coverage are intensified by dissimilarities in the quality of service. Although the water supply system of the federal capital district provides somewhat more than

1/ See details in Annex 1.

800 litres daily per connected person, many water services in rural areas supply only 100 litres of water daily through residential service connections and less than 20 litres daily at public water outlets. Even in provinces such as San Luis, which has a fairly high proportion of served population (65%), more than one third of the rural communities served are supplied through public fountains.

- 2.07 Drinking water is supplied to the Argentine population through three services: (i) the Empresa de Obras Sanitarias de la Nación, which manages the service in 252 communities which, taken together, account for 80% of the total national population; (ii) the Servicios Provinciales de Obras Sanitarias, which operates within the respective provincial jurisdictions wherever provision of the service has not been expressly vested in the national organizations; and (iii) the Servicio Nacional de Agua Potable Rural, which was created to carry out the water supply program for communities of 100 to 10,000 population.

C. The Greater Buenos Aires Metropolitan Area

- 2.08 The Buenos Aires conglomeration, or Greater Buenos Aires, comprises the city of Buenos Aires and 19 provincial districts. It has a population of 8.1 million persons, 3 million of whom live in the capital city and 5 million live in the adjacent areas. Whereas the population in the urban area is 100% served, the suburban area is only 47% covered, that is, more than 2.7 million persons lack water services. ^{1/} Moreover, the supply of water to the conglomeration varies significantly, as may be seen in Annex 2. Whereas water supply in the Buenos Aires district is 800 litres, in the nearby areas of Almirante Brown and Tres de Febrero it is 228 and 240 litres, respectively. The reason for the apparently excessive supply of water to the city of Buenos Aires is that the water mains, constructed to supply the whole conglomeration, extend only to the capital city itself and to some areas such as Lanus, Avellaneda and Quilmes, and there has been no construction of the extensions called for in the master plan into the other areas that were supposed to be supplied.
- 2.09 The Empresa de Obras Sanitarias de la Nación is responsible for the operation of the system for supplying water to the city of Buenos Aires and to 13 of the 19 districts. The remaining 6 districts are supplied by the Dirección de Obras Sanitarias of Buenos Aires Province.
- 2.10 The area served by the OSN is supplied through an interconnected system that draws surface water from the River Plate and treats it at two plants: the San Martín plant, located in the Barrio Palermo, and the Bernal plant, as well as more than 400 wells located in the surrounding areas. ^{2/} The Bernal treatment plant was partly financed through loan 70/SF-AR.

^{1/} See table Annex 2.

^{2/} See Map Annex 3.

- 2.11 It is estimated that 5.4 million persons are now being served meaning that coverage is 67%. The system contains 856,000 service connections. The total system demand is 3.2 million cubic meters of water daily. Average demand per person is 592 litres of water daily. This average includes system losses, water use by national, provincial and municipal government offices, watering of public parks, street cleaning and watering, the cleaning of sumps, commercial uses, family uses, water supplied to ships, etc.
- 2.12 The present system capacity of 3,550,000 cubic meters of water daily would increase to 4.5 million cubic meters of water daily by the end of 1977.

<u>Output in Cubic meters Daily</u>		
<u>Source and Treatment</u>	<u>At Present</u>	<u>At the End of 1977</u>
San Martín Treatment Plant	2,900,000	2,900,000
Bernal Treatment Plant	60,000	1,000,000
Wells	590,000	590,000
	<u>3,550,000</u>	<u>4,490,000</u>

- 2.13 Output to be obtained by the end of this year (1977), when the Bernal treatment plant becomes fully operational, will provide for present levels of use up to a population of 8.1 million persons, which is about 10.1 million persons at 80% coverage. No expansion of intake facilities for at least 15 years would be required. This period might be further extended to the adoption of a metered water use and rate-schedule policy that would discourage excessive use as well as waste.
- 2.14 The proliferation of water wells brought on by the urgent need for some kind of water supply service to large areas as well as uncontrolled water withdrawal by industry, have caused a decline in yield and the salinization of the ground water tables. Hence well water may be used in future, only less intensively and as an alternative source of supply.
- 2.15 Water conveyance from the treatment plant is done through a large system of underground canals which, according to Argentine terminology, are called underground rivers. These consist in a system of circular tunnels measuring 2.6 meters to 5.20 meters in diameter, which are located at depths ranging from 20 meters to 40 meters and which carry water by gravity, not under pressure, to the distribution pipes whence it is pumped into regulating reservoirs. So far more than 31 kilometers of underground rivers are in operation. At the end of this year 11.2 kilometers more of the Bernal-Lanus section will become operational, which will make the system somewhat more than 43 kilometers long. Construction of the Bernal-Lanus underground river, as well as the Lanus lift station are related to the program financed through loans 43/SF-AR and 86/TF-AR. The size and length of these sections and the capacity of the lift stations of the terminals is summarized in the following table:

<u>Existent Sub- terranean Rivers</u>	<u>Diameter in meters</u>	<u>Length in meters</u>	<u>Lift Stations</u>	
			<u>Existent</u>	<u>Flow m3/sec</u>
1. Palermo-Bifur- cación	4.60	2130	1. Córdoba	6.81
2. Bifurcación- Córdoba	4.20	2900	2. Caballito	10.38
3. Bifurcación- Caballito	2.60	5380	3. Devoto	5.48
4. Palermo-Devoto	4.20/2.60	8860	4. Paitoví	7.46
5. Córdoba-Paitoví	3.80	3015	5. Lanús	9.13
6. Paitoví-Lanús	3.80	8768		
		<u>31853</u>		

<u>Under Construction/scheduled for completion 1977</u>			<u>Under Construction/ scheduled for com- pletion 1980</u>	
1. Bernal-Lanús	4.20/4.60	<u>11235</u>	1. Saavedra	6.60
			2. Vicente López	7.59
			3. Floresta	6.68
	Total	<u>43088</u>		

2.16 The served areas have mains, distribution pipe nets, and residential service connections.

D. Deficiencies of the Present-Day System

2.17 The system has sufficient intake and treatment capacity but its distribution system has considerable limitations. This has caused large areas to have poor service at very low pressure, whereas large areas surrounding the city have no service at all. Residential service connections are only 4.3% metered. Furthermore, the water rate charge is not based on actual consumption, and the excessive use and waste of water is thereby encouraged.

2.18 Besides these physical limitations, urban water service was affected by the poor rate-schedule scheme which was insufficient to cover the operating costs and provide for the investments necessary to expand the system. Lack of system expansion and population growth have increased the physical limitations of the service, whereas insufficient revenues have caused the financial deterioration of the company which has had to depend on government subsidies to continue its operations.

2.19 According to a study done by the Argentine Government with a view to revising the rate-schedule scheme, up until the month of June 1976 the revenues of the OSN provided for only 29% of the company's operating and maintenance costs. In those circumstances and in accordance with the government policy of self-financing of public utility companies, a 15% cumulative monthly increase in the current rates was ordered which remained in effect until July 1977, at which time it was reduced to 6% monthly. That increase, applied over the last 12 months, brought on an increase in rate charges of 435%. ^{1/} With that increase the company had by December 1976 covered 80% of the costs of the whole fiscal year, it being estimated that at the end of this year the total annual operating costs would be covered. From then on, it has been estimated, the increase would cover not only the operating costs but provide for the debt service and yield surpluses for investment in general programs as well.

E. Program for the Future

2.20 The program for the future, which forms part of the La Matanza project, calls for supplying water to the Buenos Aires conglomeration up to the year 2010, at which time there would be a population of 12 million persons. A conservative estimate of demand for all of that population is 6 million cubic meters of water daily, which amount could be reduced through widespread use of water meters and adequate service rates. The plan calls for meeting this demand by expanding the capacity of the San Martín and Bernal plants as follows:

<u>Source and treatment</u>	<u>m³/day</u>	
	<u>1977 Capacity</u>	<u>Future Capacity</u>
San Martín Plant	2,900,000	4,000,000
Bernal Plant	1,000,000	2,000,000
Wells	590,000	250,000
	<u>4,490,000</u>	<u>6,250,000</u>
	=====	=====

2.21 The Palermo plant would be expanded 30%; capacity of the Bernal plant would be increased two-fold, which may be done easily inasmuch as both projects were designed to be carried out in stages. Output of the wells would be reduced nearly 60%. The continuing construction of the underground rivers and lift stations that form part of the integrated system would be done in stages, in coordinated fashion, anticipating the demand expected in each area over the next 30 years.

^{1/} Over the same period, retail prices rose 149% and basic wages only 61%.

III. THE PROGRAM

A. Objectives

- 3.01 The purpose of the program, to the financing of which the proposed loans would contribute, is as follows:
- (i) to expand the coverage of the water supply services to the urban and rural population of the country; and
 - (ii) to promote the rationalization of water use through the mass installation of meters in the urban areas in the country served by the water supply system.

B. Description

- 3.02 The program would consist of two subprograms: the rural subprogram and the urban subprogram. The two subprograms form part of the National Plan the Government of Argentina has been executing in stages with a view to extending and improving the water supply services of the country.

C. Rural Subprogram

- 3.03 It consists in the construction of approximately 226 water supply systems to supply 270 rural communities with from 100 to 10,000 inhabitants. The total population is estimated at 400,000 inhabitants, and the future design population, at 520,000. The works included constitute the third stage of the National Water Supply and Rural Sanitation Plan (SNAP). The subprogram would benefit smaller communities in the interior of the country which at present do not have an adequate water supply service. Approximately 170 communities with an average population of 1,000 inhabitants, would be supplied with local systems including domiciliary service connections; 60 communities with an average population of 280 inhabitants would be supplied by means of public fountains or standpipes and 40 communities, by means of regional water supply systems which, with a single source, would supply several communities located along the path of the system. The average population of each regional system would be 4450 inhabitants.
- 3.04 The representative sample of the works that would be executed under the subprogram consists of 91 systems for which plans and specifications at the construction level are available. This total may be broken down into 86 local systems and 5 regional systems. The corresponding works represent 49% of the direct construction costs of the subprogram and would serve 60% of the total anticipated beneficiaries. This sample, which would make it possible to initiate the program immediately, has been prepared by SNAP and reviewed by the Bank as part of the analysis of the proposed operation.

1. Characteristics of the Systems

3.05 Each system would consist of intake, conveyance, treatment, storage, and distribution works and, where appropriate, of domiciliary connections with a meter or consumption regulator. The parameters of the design standards adopted are as follows:

- (i) Design period: 20 years.
- (ii) Average annual supply: 50 liters/inhabitant/day for the public fountains and from 150 to 250 liters/inhabitant/day for metered connections.
- (iii) Peak day: 120% of annual average.
- (iv) Peak hours: 150% of peak day.
- (v) Regulation volume: 20% of daily peak consumption.
- (vi) Pressure: minimum 10.0 m. and maximum 50.0 m.
- (vii) Minimum diameter: 2".

3.06 The characteristics of the works of each system would be as follows:

(a) Intake Works

3.07 According to the nature of the source, the following types would be constructed:

- (i) Wells, with an average depth of 50.0 m. and an average diameter of 10" with steel pipes.
- (ii) Springs, which would be collected by means of intake boxes divided into two sections, one for the valves and the other for the water. They would also have the necessary accessory works for the health protection of the source so as to prevent contamination by surface water.
- (iii) Infiltration galleries under the river beds, consisting of concrete pipes with an average diameter of 12", with drill holes and a sheathing of porous material around the pipes.
- (iv) Surface water dams.

3.08 Of the systems to be constructed, approximately 58% will be supplied by wells, and 42% by surface sources. The specifications of each project must define the water sources, their minimum capacity to supply the

system as well as their quality which must be within the prescribed standards. In this regard the proposed loan contract would include a clause stipulating that the borrower shall submit to the Bank, before issuing a call for bids or beginning the construction of any system: (i) studies demonstrating that the flow and quality of the water are acceptable; (ii) evidence that he is the owner of the property or easement rights of the water sources. 1/

(b) Conveyance

- 3.09 For the conveyance of the water from the source of supply to the reservoir PVC and cement pipes will be used, the diameter of which will range from 4" to 20".

(c) Treatment

- 3.10 The water collected from surface water courses will be treated in the conventional manner by means of sandtraps, simple sedimentation tanks or with coagulants, slow or rapid sand filters and chlorination. In the case of water collected by wells, galleries or springs, the only treatment will be chlorination. Where the water quality so requires, special treatment systems would be established to remove excess of fluorides or arsenic, as was done during the second stage.

(d) Storage

- 3.11 The water will be stored in reinforced concrete or steel tanks, either elevated₃ or supported₅, depending on the topography of the communities. For 10 m³ to 500m³ tanks, standard designs will be used.

(e) Distribution

- 3.12 For the distribution networks, PVC and asbestos cement pipes will be used; the diamaters will range from 2" to 14".

(f) Domiciliary and In-house Connections

- 3.13 The domiciliary connection includes the section between the public network and the meter box, one in-house, 1/2" in diameter, with a plastic pipe 15 m approximately in length ending in the regulating tank that will be installed in all houses and a 1/2" diameter downspout ending in a faucet from which the user can extend the service to such sanitary appliances as he installs.

1/ Recommendations, paragraph 1 (c) and (d)

2. Technical Cooperation

- 3.14 The subprogram includes a technical cooperation operation intended to finance courses for the education and training of the middle-level personnel that will be responsible for the supervision and operation of such new systems as may be constructed. The program would begin at the end of the first year. The courses would be given by local professionals and would be supplemented by practical training programs in the systems already in operation. The budgetary details and the cost of this technical assistance appear in the plan of operations, Annex 4.

D. Urban Subprogram

- 3.15 It constitutes the third stage of the comprehensive plan for the water supply system of Greater Buenos Aires. ^{1/} The first and second stages of this plan were financed in part out of loans 43/SF, 86/TF and 70/SF. The purpose of the subprogram would be as follows:
- (i) To extend the distribution network to the suburban district of La Matanza, in the province of Buenos Aires, in order to supply water for a present population of 700,000 inhabitants and a future population of 1,500,000 inhabitants. The works to be constructed would provide 70% of the present population with domiciliary service connections and meters. The basic works will be capable of serving 100% of the projected future population, which is expected to be reached in the year 2010. The works to be constructed will expand the service area and would supplement the partial supply to the present population that is provided by means of wells.
 - (ii) To install 400,000 meters, of which approximately 100,000 would be installed in the La Matanza area. With these meters, the OSN would have completed, when the execution of the program is finished, the installation and operation of 545,000 meters that would serve as basis for the establishment of the rate system for measured consumption. With these measured connections it is expected to cover all the industrial and commercial consumers in Greater Buenos Aires and the principal cities of the country, as well as private consumers with special consumption levels (houses with swimming pools and/or gardens) and a large part of the regular private consumption.

^{1/} Greater Buenos Aires consists of the City of Buenos Aires and 19 provincial districts. The Empresa de Obras Sanitarias is responsible for the operation of the water supply system of the City of Buenos Aires and 13 districts. The other 6 districts are serviced by the Direccion de Obras Sanitarias of the province.

1. The La Matanza Project

3.16 It includes the execution of the following works:

- (i) Termination of the Paitoví-Floresta section of the underground river 1/ which would convey the water treated in the Bernal station to the Floresta lift station. This section is under construction and is being financed exclusively out of local resources. Its diameter would be 3.75 m. and its length, 6899 m, and it would run at a depth of approximately 25 meters.
- (ii) Extension of the underground river from the Floresta station to La Matanza. This section would be 3.00 m. in diameter and 6700 m. in length and its depth would vary from 15 to 33 m. Its conveyance capacity would be 6.0 m³/sec.
- (iii) Civil engineering works and equipment for the La Matanza lift station, with the capacity indicated for the underground river. It will be equipped with 6 electric pumps with a 4500m³/hour capacity and an average dynamic head of between 66.00 and 75.00 m. It will include a transformer station of 3 x 13,200 volts to 3 x 6,600 volts and supplementary works.
- (iv) Pressure lines from the lift station to the 5 existing elevated tanks 2/. The pipes would be of prestressed concrete and asbestos cement; their diameter would vary from 20" to 44" and their approximate length would be 19 km.
- (v) Supply and installation of approximately 78 km of asbestos cement and prestressed concrete mains, 6" to 28" in diameter, including cast iron accessories.
- (vi) Supply and installation of approximately 500 km of 3" asbestos cement distribution line for domiciliary service, including accessories, shut-off valves, and fire hydrants.
- (vii) Installation of approximately 100,000 domiciliary connections including the pertinent consumption meters. 3/

1/ In Argentine terminology "underground river" means a system of circular tunnels, 2.60 m. - 5.20 in diameter, running at depths of 20 to 40 meters and conveying water by gravity to the distribution centers from which it is lifted to regulating reservoirs.

2/ The capacity of the present tanks, which are located at Ramos Mejia, San Justo, General Paz and Belgrano city (2), is 1300 m³.

3/ 44,000 are for existing connections without meters.

3.17 The section of the Paitoví-Floresta underground river, which is under construction, was included in the program because its early completion is essential for insuring the water supply of the project area. The inclusion of this section in the program will enable the Bank to exercise appropriate supervision over the rate of advance of its construction and to require suitable and prompt steps to be taken should any delays occur in the execution schedule. The specifications of the section are the same as for the new section to be constructed. Since it is completely financed out of local resources, its inclusion in the program does not affect the participation of the Bank in the proposed financial plan.

(a) Service Area and Capacity

3.18 The La Matanza district is a suburban area of Buenos Aires and includes the communities of San Justo, Ramos Mejia, Tablada, Villa Madero, Villa Luzuriaga, Tapiales, Aldo Bonzi, Isidro Casanova, Virrey del Pino, 20 de Junio, Ciudad Evita, Rafael Castillo and Gregorio Lafarrete. It covers an area of approximately 30,000 hectares. Provision had been³made in the Buenos Aires Comprehensive Water Plan for a flow of 6.0 m³/sec. which would be available at the end of the Floresta-Matanza underground river and could supply a population of up to 1.5 million inhabitants with an annual average supply of 350 liters/person/day. The immediate service area that would be supplied by this project, amounts to 4,900 hectares and has a present population of approximately 700,000 inhabitants. The present source of supply is expected to be able to serve a total area of 7,000 hectares with a population of 1.5 million. Outside this area there are certain low density suburban areas that will have to be supplied by other projects.

(b) Stages and Population

3.19 The project, which is to be executed in stages, provides for the supply of La Matanza with a design period of 30 years. During the first stage of this program the area adjacent to the Federal Capital will be supplied. It may be broken down as follows:

	<u>Area (Hectares)</u>	<u>Population (Inhabitants)</u>	<u>Connections</u>
(i) No service	1,200	180,000	30,000
(ii) Unsatisfactory service	2,700	150,000	25,000
(iii) Regular service	1,000	160,000	27,000
(iv) Existing housing complexes	-	150,000	14,000
(v) Boundary areas	-	<u>60,000</u>	<u>4,000</u>
TOTAL	4,900	700,000	100,000

(c) Source of Supply

3.20 In selecting the source of water supply three alternatives were examined:

- (i) Ground water. It has been found that there is no possibility of more intensive exploitation of ground water because of its decreasing yield and the increase in salinity.
- (ii) Use of the La Matanza River. This water course is highly polluted by industrial wastes which have converted it into a sewer and it therefore cannot be used for human consumption. In accordance with the standards of raw water for drinking purposes, this water course had to be ruled out.
- (iii) Comprehensive plan. In view of the problems of the foregoing alternatives, a mixture of surface waters transported from other areas, supplemented by booster wells, was selected, and this combination constitutes the most advisable and economical solution.

(d) Conveyance Alternatives

3.21 In order to define the water conveyance system from the Floresta station, a comparison was made of two alternatives, namely the underground river system and pressure lines. The findings show that the first system, in addition to being more economical, has the following advantages:

- (i) It makes it possible to store a substantial head of water for dealing with emergencies.
- (ii) It is shorter in length since it passes under existing buildings and its construction does not give rise to difficulties.

- (iii) Its operation is more reliable and is not subject to water hammer as are pressure lines.

(e) Water Quality

- 3.22 The water produced by the San Martin and Bernal plants satisfies the quality requirements of the National and International Standards. The salt content of the well water is higher than the standard, but when mixed with the water to be transported by the underground river, produces water of an acceptable quality. Final treatment with chlorine guarantees the quality of the water to be distributed. The underground rivers are completely water tight pipes that do not allow ground water to enter and therefore are not subject to contamination by inferior quality water.

(f) Design

- 3.23 Designs at the construction level are available for all components of the project with the exception of the distribution networks. The mains had been designed for an average demand of 500 liters/inhabitant/day but this demand was reduced to 300 liters/inhabitant/day in view of the proposed use of meters. The Enterprise has begun to redesign the mains' networks and the final design of the distribution networks, which may easily be completed within a maximum period of 6 months. For the purposes of analysis, a preliminary redesign has been prepared and has made it possible to calculate a sufficiently accurate budget for the mains' networks. For the distribution networks the Enterprise used a detailed survey of the area, to which the unit prices of the piping it normally uses for this type of installation have been applied. The changes introduced into the mains' networks have not impeded the formulation of an accurate budget and the redesign will constitute a critical factor in the general programming.

(g) Design Parameters

- 3.24 The project design is based on the following parameters:

- (i) Demand. The comprehensive plan has been calculated on the basis of an average demand of 500 liters/inhabitant/day for all uses, which without meters would be reasonable. However, in view of the decision of the Enterprise to step up the installation of meters, in accordance with a program under way and which for the La Matanza area envisages the installation of meters in all connections, the design demand has been reduced from 500 to 350 liters/inhabitant/day, which is considered reasonable given the type of urban development, uses, pressure of the area to be served, etc.

- (ii) Demand variations. The capacity of the underground river has been calculated for the annual average consumption. The networks are calculated for the peak demand hour, which represents 150% of the daily average.
- (iii) Fire fighting demands. The simultaneous demand during 4 hours of 2 fires of 15 liters/second each, in any area, has been taken into consideration.
- (iv) Regulation volume. The area has four reservoirs which store 5,200 m³. This represents 2% of the annual average consumption and is considered acceptable since they serve as regulators for giving pressure to the corresponding areas and for fires.
- (v) Pressures. The minimum pressure will be 17.50 m. and the maximum 35.0 m.

2. Meters Plan

- 3.25 The meters plan would be the continuation of that initiated with local resources, consisting of the installation of 40,000 meters in the area of the Federal Capital and an additional 100,000 meters which would be installed in the La Matanzas area. The plan provides for the installation of 300,000 additional meters in the Federal Capital and in the principal cities of the country until it gradually covers industrial and commercial connections, high consumption domiciliary connections, and part of the current consumption domiciliary connections. The plan will be carried out in two stages. In the first stage, 120,000 meters would be installed within the two years following the signature of the loan contract, as follows:

Federal Capital	20,000
Greater Buenos Aires	40,000
Mar del Plata	30,000
Rosario	15,000
Santa Fe	10,000
San Juan	5,000
	<hr/>
Total	120,000
	=====

- 3.26 In the second stage, which would begin in the second year following that of the signature of the loan contract and be completed in the following two years, an additional 180,000 meters would be installed. The meters

would be distributed by community according to the results of the census being carried out by OSN and, of course, within the order of priorities established, namely that industrial and commercial connections should first be covered then high-consumption domiciliary service connections and then current-consumption domiciliary service connections. Within the 12 months following the signature of the contract, OSN should present to the satisfaction of the Bank a report on implementation of the plan for the installation of meters. 1/

- 3.27 When the meters provided for La Matanza in the meters plan have been installed, there would be, at the end of the construction period of the program, 544,500 connections with meters in the country out of a total of 2,000,000 connections that would be in operation at that time, i.e., 27%. Although this degree of coverage is not deemed totally satisfactory, it will have meant a substantial effort carried out in a period of 4 years and will have laid the basis for institutionalizing metered consumption and the collection of rates on the basis of metered consumptions. Once the metered service system has been established, this level of coverage is expected to gradually rise, and all new service connections would be with meters until in a period of 10 years the coverage would be higher than 80%.

E. Cost of the Program

- 3.28 The total cost of the program amounts to the equivalent of US\$197.5 million, of which US\$67.0 million represents the rural subprogram and US\$130.5 million, the urban subprogram. The direct and indirect external costs amount to the equivalent of US\$31.5 million. The details of these costs, broken down by subprogram and classified by investment category, are summarized in the following table.

1/ Recommendations, paragraph 1(a) and (b)(i).

(In US\$ thousands equivalent)

		<u>Foreign Exchange Costs</u>		<u>Local Currency</u>	
		<u>Direct</u>	<u>Indirect</u>	<u>Costs</u>	<u>Total</u>
A. Rural subprogram					
I.	<u>Engineering and admin- istration</u>	-	-	15,000	15,000
	1.1 Studies and projects	-	-	2,400	
	1.2 Administration and supervision	-	-	12,600	
II.	<u>Direct construction Cost</u>	-	8,500	38,900	47,400
	2.1 Execution of work	-	8,000	38,000	
	2.2 Drilling equipment	-	500	900	
III.	<u>Financial costs</u>	1,762	-	2,178	3,940
	3.1 Interest and commissions	1,660	-	1,910	
	3.2 IDB supervision	102	-	268	
IV.	<u>Associated costs</u>	-	-	660	660
	4.1 Vehicles	-	-	250	
	4.2 Land	-	-	270	
	4.3 Technical coop- eration	-	-	140	
	Subtotal	1,762	8,500	56,738	67,000
B. Urban subprogram					
I.	<u>Engineering and administration</u>	-	-	4,620	4,620
	1.1 Studies and design	-	-	1,730	1,730
	1.2 Administration and supervision	-	-	2,890	2,890
II.	<u>Direct Costs</u>	2,500	11,780	81,520	96,800
	2.1 Termination of Paitovi- Foresta River 1/	-	-	25,500	25,500
	2.2 Floresta-Matanza River	2,500	2,300	11,900	16,700
	2.3 Lift station	-	3,000	6,500	9,500
	2.4 Pressure lines	-	-	7,900	7,900
	2.5 Mains and distribu- tion lines includ- ing service connec- tions and meters	-	3,480	18,720	22,200
	2.6 Purchase and instal- lation of 300,000 meters	-	3,000	12,000	15,000

	<u>Foreign Exchange Costs</u>		<u>Local Currency</u>	<u>Total</u>
	<u>Direct</u>	<u>Indirect</u>	<u>Costs</u>	
III. <u>Financial costs</u>	<u>3,410</u>	-	<u>6,450</u>	<u>9,860</u>
3.1 Interest and commissions	3,190	-	6,210	9,400
3.2 IDB supervision	220	-	240	460
IV. <u>Unallocable</u>	<u>450</u>	<u>3,098</u>	<u>15,672</u>	<u>19,220</u>
4.1 Contingencies	100	768	2,772	3,640
4.2 Escalation	350	2,330	12,900	15,580
Subtotal	<u>6,360</u>	<u>14,878</u>	<u>109,262</u>	<u>130,500</u>
Total	<u>8,122</u>	<u>23,378</u>	<u>166,000</u>	<u>197,500</u>

1/ To be constructed exclusively with local funds and includes an allowance for price escalation.

1. Bases of the Cost of the Rural Subprogram

- 3.29 The budget of the subprogram is based on a representative sample made up of 91 eligible projects. An analysis of the budget thus obtained showed that it reasonably reflected the total cost of the subprogram as well as the cost of each of the investment categories included.
- 3.30 The engineering costs have been calculated on the basis of the fees paid to the engineers and consulting firms that prepared the sample projects and represent 3.3% of the cost of the subprogram. The administration and supervision costs are based on the salaries actually paid by SNAP and the SPAR and represent 18.8% of the total cost, which is considered reasonable given the complexity of the new subprogram. The amount assigned to the category "Engineering and Administration" (US\$15,000,000) represents 22.4% of the total cost of the program, which is the same percentage as in loan 302/SF and is made up as follows:
- (i) US\$2,400,000 for the cost of studies and designs
 - (ii) US\$12,600,000 for the cost of the administrative and supervisory personnel of SNAP and SPARs that will take part in the supervision of the operation.
- 3.31 The direct construction cost has been estimated on the basis of the budgets of the 91 projects available at the final design level, and actual prices adjusted according to the experience with the two earlier loans have been used. The direct construction costs (US\$47,400,000) represent 71% of the total cost of the subprogram and are made up as follows:
- (i) US\$46,000,000 for the execution of the works, including equipment, materials and manpower, which will be the responsibility of contractors and
 - (ii) US\$1,400,000 for the purchase of five motor-driven well drills.
- 3.32 The direct construction costs per capita in relation to the present populations of the 91 projects that make up the sample are shown in the attached graph, 1/ in which two straight lines have been drawn to show the trend of the two types of systems: (a) those of smaller communities we call "local systems" and (b) the systems that service a number of communities and which we call "regional system".

By grouping the 86 local systems into 13 classes with intervals of 500 inhabitants, we find that the pertinent trend is as follows:

1/ See Annex 5.

<u>Class</u>	<u>Present Population (Intervals)</u>	<u>Median</u>	<u>Frequency (No. of Systems)</u>	<u>US\$ Cost per Capita Present Population</u>
1	101 - 500	250	40	135
2	501 -1000	750	20	105
3	1001 -1500	1250	9	92
4	1501 -2000	1750	4	86
5	2001 -2500	2250	2	78
6	2501 -3000	2750	2	72
7	3000 -3500	3250	1	66
8	3501 -4000	3750	2	64
9	4001 -4500	4250	3	62
10	4501 -5000	4750	-	-
11	5001 -5500	5250	2	58
12	5501 -6000	5750	-	-
13	6001 -6500	6250	1	55
			86	Average 1 110

The weighted average of the per capita cost is US\$110, which would be applied to the future population of this type of systems. For the regional systems an average cost per person of US\$70 is obtained from the respective trend. For the calculation of the future population is has been determined that the local systems would have an average population of 1170 inhabitants per community and that the regional systems, 4450 inhabitants per community. Applying these values and costs per person the result would be:

<u>System</u>	<u>Communities</u>	<u>Population</u>	<u>Cost S/per head</u>	<u>Subtotal</u>	<u>%</u>
1. 86 local sys-					
tems	93	92,981	110	10,227,910	27
2. 5 regional sys-					
tems	33	118,315	70	8,282,050	22
3. 1 regional sys-					
tem	6	26,700	70	1,869,000	4
4. 129 local sys-					
tems	138	162,004	110	17,820,440	47
Total	270	400,000		38,199,400	100

3.33 The financial costs (US\$3,940,000) represent 5.9% of the total cost and include the interest on the proposed loan that will be paid during the construction period as well as the amounts for the credit commission and the IDB inspection and supervision fee.

3.34 The concurrent costs (US\$660,000) represent 1% of the total cost and include:

- i. US\$250,000 for the purchase of vehicles: 20 double-cabin pickup trucks, 3 dump trucks similar to the F-800, and 3 station wagons.
 - ii. US\$270,000 for the purchase of the necessary land for the program.
 - iii. US\$140,000 for the training of the personnel that will operate and maintain such systems as may be constructed. 1/
- 3.35 In accordance with the rules governing this type of operation, while contingencies have not been included, escalation of the direct construction costs has been included and calculated on the basis of a 10% annual escalation for equipment and 4% for civil engineering works. 2/
- 3.36 The direct external costs are represented exclusively by the financial costs of the loan in foreign exchange, payable during the execution period of the loan and the IDB inspection and supervision charges. The indirect external costs represent the value of the materials of external origin incorporated into goods produced in the country that would be used in the works to be carried out. They are: drilling equipment, asbestos for piping, resins for plastic piping, depreciation of construction equipment, pig iron and cooper for engines, sand for concrete and the imported part of fuel. The estimates made are based on the experience gained in executing loan 302/SF-AR and the inquiries made of producers of materials and local construction companies. The indirect costs as calculated represent 18% of the cost of equipment or construction. The breakdown of the direct and indirect external costs is included in the table in Annex 7.
2. Bases of the Costs of the Urban Subprogram
- 3.37 The item for financing studies and designs represents 3% of the direct costs, which is considered reasonable for this type of project. The administration and supervision costs reflect the salaries at present being paid by the Government. The category "Engineering and Administration" (US\$4,620,000) is made up as follows:
- i US\$1,730,000: for studies and designs
 - ii. US\$2,890.000: for the cost of the administrative and supervisory personnel of the project
- 3.38 The direct construction costs have been prepared by the executing agency and reviewed by the Bank. They are based on international construction prices for estimating the costs of the Floresta-Matanza underground river and the lift station. In the other subcategories the costs have been based on the domestic prices usually paid by the enterprise for similar works. The prices estimated for the meters would permit international bidding in which national and regional industry would participate with the margin of preference the Bank has established as a policy.

1/ See Plan of Operations, Annex 4.

2/ See Annex 6.

- 3.39 The item for direct construction costs (US\$96,800,000) represents 74% of the total cost of the subprogram and includes:
- i. the equivalent of US\$25,500,000 for the termination of the Paitoví-Floresta underground river, which is at present under construction and is being financed exclusively out of local funds.
 - ii. US\$56,300,000 for the execution of the construction works for which the international bidding procedure will be used and which correspond to: the Floresta-Matanza underground river, the La Matanza lift station, pressures lines, mains networks, distribution networks, domiciliary connections, and 100,000 meters.
 - iii. US\$15,000,000 for the purchase and installation of 300,000 meters to be distributed throughout the country according to the plan described in paragraph 3.25.
- 3.40 The per capita direct construction costs obtained for this project, excluding the Paitoví-Floresta-Matanza underground river which would supply a major population, amounts to US\$78. 1/ The proportional cost of the underground river that must be charged to this project is US\$10.40 2/ so that the present total per capita cost is US\$88.40, which is considered reasonable.
- 3.41 The financial costs (US\$9,860,000) represent 5% of the total cost and include the interest on the proposed loan during the construction period as well as the amounts for the credit commission, the IDB inspection and supervision fee, and the interest and commissions of the CNAS.
- 3.42 The unallocable costs (US\$19,220,000) represent 15.3% of the total costs and include:
- i. US\$3,640,000 for contingencies
 - ii. US\$14,080,000 for escalation during construction
- 3.43 Contingencies have been established at 5% of the direct costs, excluding the Paitoví-Floresta underground river, which is considered sufficient in view of the status of the design. Escalation has been calculated by applying a 10% annual increase for equipment and civil engineering works.
- 3.44 The direct external costs of the program include (1) the external costs of the foreign construction firm which will be responsible for the construction of the Floresta-Matanza underground river and the allocations for contingencies and escalation corresponding to that contract and (2) the financial costs of the loan in foreign exchange, payable during the execution period of the subprogram, and the IDB inspection and supervision charges.

1/ Calculated on the basis of a present population of 700,000 inhabitants.

2/ Calculated on the basis of a service population of 1,600,000 inhabitants.

3.45 Just as in the rural subprogram the indirect costs represent the cost of materials of foreign origin incorporated into goods produced in the country that would be used in the works and the depreciation of the construction equipment which would be brought into the country for constructing the underground river. A breakdown of the direct and indirect foreign exchange costs verified in the examination and analysis of each of the works that make up a subprogram appears in Annex 8.

F. Financing Plan

3.46 The total cost of the program, which amounts to the equivalent of US\$197,500,000, would be financed as follows:

(In thousands of US\$ or equivalent)

	<u>Origin of Currency</u>		<u>Use of Currency</u>		<u>Total</u>	<u>%</u>
	<u>Foreign</u> <u>Exchange</u>	<u>Local</u> <u>Currency</u>	<u>Foreign</u> <u>Exchange</u>	<u>Local</u> <u>Currency</u>		
A. <u>Rural Subprogram</u>						
IDB: OC	10,112	-	10,112	-	10,112	15
FSO	-	26,888	-	26,888	26,888	40
SNAP	-	13,300	150	13,150	13,300	20
SPAR	-	6,600	-	6,600	6,600	10
Community contribution	-	10,100	-	10,100	10,100	15
Subtotal	10,112	56,888	10,262	56,738	67,000	100
B. <u>Urban Subprogram</u>						
IDB: OC	20,888	-	20,888	-	20,888	16
FSO	-	25,112	-	25,112	25,112	19
CNAS	-	34,000	350	33,650	34,000	26
OSN	-	50,500	-	50,500	50,500	39
Subtotal	20,888	109,612	21,238	109,262	130,500	100
Total	31,000	166,500	31,500	166,000	197,500	
C. <u>Total Program</u>						
IDB: OC	31,000	-	31,000	-	31,000	16
FSO	-	52,000	-	52,000	52,000	26
Local funds	-	114,500	500	114,000	114,500	58
Total	31,000	166,500	31,500	166,000	197,500	100

- 3.47 To finance the program the Bank would grant Argentina two loans; one out of ordinary capital resources in the equivalent of US\$31 million, which would be disbursed in foreign exchange and another, out of the resources of the Fund for Special Operations, equivalent to US\$52 million which would be disbursed in Argentine pesos.
- 3.48 The proceeds of the loan that would be disbursed in foreign exchange would be used to finance the costs corresponding to purchases of goods and services under the international public bidding procedure and in which margins of preference acceptable to the Bank would be applied where appropriate. These resources would cover foreign exchange costs, both direct and indirect including the financial costs of the loan payable in foreign currency.
- 3.49 The proceeds of the loan that would be disbursed in Argentine pesos would be used to finance part of the local currency costs of the construction contracts awarded in accordance with the international public bidding procedure as well as of goods and services of national origin that might be acquired by means of public bidding restricted to Argentina.
- 3.50 These resources would be applied in each subprogram in accordance with the investment categories shown in the following table:

	B A N K				Local Resources				
	Direct	Indirect	Local	Sub-total	Direct	Indirect	Local	Subtotal	Total
A. RURAL SUBPROGRAM									
I. <u>Engineering and Management</u>	-	-	1,620	1,620	-	-	13,380	13,380	15,000
1.1 Studies and projects	-	-	1,620	-	-	-	780	-	
1.2 Management and supervision	-	-	-	-	-	-	12,600	-	
II. <u>Direct Costs</u>	-	8,500	22,870	31,370	-	-	16,030	16,030	47,400
2.1 Construction work	-	8,000	22,330	-	-	-	15,670	-	
2.2 Drilling equipment	-	500	540	-	-	-	360	-	
III. <u>Financial Charges</u>	1,612	-	2,178	3,790	150	-	-	150	3,940
3.1 Interest and commissions	1,510	-	1,910	-	150	-	-	-	
3.2 Supervision	102	-	268	-	-	-	-	-	
IV. <u>Associated Costs</u>	-	-	220	220	-	-	440	440	660
4.1 Vehicles	-	-	120	-	-	-	130	-	
4.2 Land	-	-	-	-	-	-	270	-	
4.3 Technical cooperation	-	-	100	-	-	-	40	-	
Subtotal	1,612	8,500	26,888	37,000	150	-	29,850	30,000	67,000
B. URBAN SUBPROGRAM									
I. <u>Engineering and Management</u>	-	-	-	-	-	-	4,620	4,620	4,620
1.1 Studies and projects	-	-	-	-	-	-	1,730	-	
1.2 Management and supervision	-	-	-	-	-	-	2,890	-	
II. <u>Direct Costs</u>	2,500	11,780	18,600	32,880	-	-	63,920	63,920	96,800
2.1 Completion of Paitovi River-Floresta section	-	-	-	-	-	-	25,500	-	
2.2 Floresta-La Matanza	2,500	2,300	3,940	8,740	-	-	7,960	-	
2.3 Lift station	-	3,000	1,970	4,970	-	-	4,530	-	
2.4 Pressure lines	-	-	3,265	3,265	-	-	4,635	-	
2.5 Main pipelines, distribution lines, residential service connections and meters	-	3,480	5,705	9,185	-	-	13,015	-	
2.6 Procurement and installation of 300,000 water meters	-	3,000	3,720	6,720	-	-	8,280	-	
III. <u>Finance Charges</u>	3,060	-	1,450	4,510	350	-	5,000	5,350	9,860
3.1 Commissions	2,840	-	1,210	4,050	350	-	5,000	-	
3.2 Bank supervision	220	-	240	460	-	-	-	-	
IV. <u>Unallocated</u>	450	3,098	5,062	8,610	-	-	10,610	10,610	19,220
4.1 Contingencies	100	768	762	1,630	-	-	2,010	-	
4.2 Escalation	350	2,330	4,300	6,980	-	-	8,600	-	
Subtotal	6,010	14,878	25,112	46,000	350	-	84,150	84,500	130,500
TOTAL	7,622	23,378	52,000	83,000	500	-	114,000	114,500	197,500

- 3.51 The local contribution to the financing of the program would amount to the equivalent of US\$114,500,00 or 58% of the total scheduled cost.
- 3.52 The part assigned to the rural subprogram, which amounts to the equivalent of US\$30,000,000, would be covered by the Argentine Government, the participating provinces, and the communities benefitted in accordance with the following approximate distribution: Argentine Government, US\$13,300,000 (20%); provinces, US\$6,600,000 (10%); and communities, US\$10,100,000 (15%).
- 3.53 The contribution to the urban subprogram equivalent to US\$84,500,000 will be covered by the Argentine Government by means of budgetary appropriations for OSN up to the equivalent of approximately US\$50,500,000 and by the Caja Nacional de Ahorros y Seguro, which will grant OSN a loan from its own resources up to the equivalent of US\$34,000.000.

IV. EXECUTION OF THE PROGRAM

4.01 Each subprogram will be executed separately and independently, in accordance with the conditions stipulated for each one of them. The National Water Supply and Rural Sanitation Service (SNAP) will be responsible for the execution of the rural subprogram. For the execution of the urban subprogram, the government has designated the Caja Nacional de Ahorros y Seguros (CNAS) to act as the financial agent for the administration and transfer of the resources assigned to the subprogram and the Empresa Obras Sanitaria de la Nación (OSN) as the executing agency of the works financed.

A. The Rural Subprogram

4.02 The subprogram will begin with the execution of the projects included in the representative sample. Plans and specifications are available for the sample, consisting of 91 systems that will serve 126 communities, and they would make it possible to immediately begin the bidding procedure. Bids for individual works can be invited or they can be made up into packets of four or six works located in neighboring areas and within the same province. The maximum execution period per system, according to experience gained in loan 302/SF, may extend to 18 months. A maximum period of 27 months is anticipated for the completion of the construction of the 91 systems. This will permit a considerable degree of flexibility in the program of awarding contracts for the works. The works will be executed under contracts with private firms selected by the public bidding procedure.

1. Procedure for the purchase of goods and award of contracts

4.03 For the purchase of equipment, materials and other goods relating to the program and in contracting works the public bidding procedure will be used in all cases in which the value of those purchases or contracts exceeds the equivalente of US\$100,000. The procedure will be very similar to that which was agreed upon at an earlier stage with the government and which appears in Annex 9 of this report. When the purchases or contracts would be financed in whole or in part out of the foreign currency resources of the proposed loan, the pertinent bidding procedures would be international in nature and the Bank's policy with respect to margins of preference in favor of local or regional industry may be applied and the eligibility of the supplier countries would be respected. 1/

4.04 When the purchase of goods is completely financed out of the local currency proceeds of the loan or with the proceeds of the local contribution, the bidding may be limited to Argentina.

1/ See Resolution paragraph 8 (h).

2. Works on force account

- 4.05 In executing loan 302/SF it was found that in some province, particularly in areas in which the topography is difficult and for small scale works, private contractors have not shown any interest in competing in calls for bids and therefore the works had to be executed on force account. It is anticipated that similar circumstances will be repeated in the execution of the new program and therefore the loan contract would permit, with the express authorization of the Bank, the execution of works on force account in duly justified cases. The total value of the works that may be executed on force account must not exceed the equivalent of US\$4,000,000. 1/

3. Preparation of additional projects

- 4.06 Through their respective provincial, rural water supply systems services (SPAR) the participating provinces will be responsible for investigating sources, preparing studies of the 135 additional projects, and executing the works approved by the SNAP and the Bank.
- 4.07 Sources will be investigated and projects prepared by contracting specialized national engineers and/or firms. The missing designs are expected to be completed during the first year of the life of the loan contract, and therefore this activity will not limit the construction program in any way.

4. Selection and promotion of communities

- 4.08 The specific subprojects that would complement the sample would be selected by the SPAR with the approval of the SNAP and in accordance with the selection criteria established by that agency for that purpose.
- 4.09 The purpose of the selection rules and criteria is to insure that: (i) the beneficiary communities are eligible by reason of their rural nature, the health priority of the service, and the income level of the population; (ii) the works planned are those that involve the least initial investment cost, taking into account possible alternative sources of water supply, (wells, surface intakes, etc.) and also the lowest operating cost; (iii) the water sources are tested, and adequate capacity is ensured in the long term; and (iv) the community agencies are in a position to make the contributions as well as to operate the system and collect such rates as may be established.
- 4.10 To select the projects the cost/effectiveness criterion (see paragraph 7.03) will be used. It takes into account the total cost per beneficiary, the annual cost of capital and the estimated cost of operation,

1/ See Resolution paragraph 8 (i).

administration and maintenance. This system provides an efficient mechanism for considering these elements during the process of identifying the potentially eligible communities and for determining the priority to be assigned to the construction of a system relative to others identified as suitable for inclusion in the program.

- 4.11 As soon as a community has been selected, a socio-economic survey and study of the community will be prepared in order to define economic levels and the readiness of the community for the project. Then the provincial service will prepare a preliminary project and a board of community promoters will encourage the establishment of a cooperative by local community leaders or existing associations. If the local agency is a municipality or an existing entity, this process is unnecessary. Bids will not be opened for any construction work until the community agency has been legally constituted and the financial participation of the community has been defined. 1/

5. Land and easements

- 4.12 The budget of the subprogram includes an amount equivalente to US\$270,000 for the purchase of the land required for the wells, elevated reservoirs and treatment plants. The pipes will be installed along public highways and no land purchase is required. According to the experience obtained in the two earlier operations, no problem of any kind is anticipated in purchasing land which, in many cases, is ceded free of charge by the community.

6. Approval of the Bank

- 4.13 Before bids are invited for each system the SNAP must submit to the satisfaction of the Bank: 2/
- (i) the agreement signed between the SPAR and the pertinent community agency for the construction of the system as well as for its subsequent operation and administration and the contract for the technical personnel required for the two last-mentioned purposes;
 - (ii) the plans, designs and specifications of the system and the technical study of it;
 - (iii) evidence that an appropriate water source is available for the project and, if it is a ground source, the hydrological study prepared on the basis of well tests;
 - (iv) evidence of the ownership or right of domain or easement over the land required.

1/ Recommendations paragraph 1 (d).

2/ Recommendations paragraphs 1 (c) and (d).

7. Supervision of the execution of the project

- 4.14 The supervision of the execution of the works would be the responsibility of the technical personnel of each of the SPAR. SNAP would be responsible for coordination at the national level and general supervision through the personnel of its head office and especially through its regional offices whose personnel will be strengthened to enable them to satisfactorily carry out that task (see Resolution paragraph 8 (d)).

8. Execution schedule of the subprogram

- 4.15 The systems included in the subprogram would be executed in a period of 4 years from the date of the contract. The works would begin in the two years following that date. The following diagram shows the general program of activities envisaged for the execution of the subprogram.

EXECUTION SCHEDULE SUBPROGRAM A

DESCRIPTION	YEAR			
	I	II	III	IV
I. <u>ENGINEERING AND ADMINISTRATION</u>				
1.1 Studies and designs of 135 systems (144 communities)	Signature of Contract			
1.2 Supervision and administration				
II. <u>DIRECT CONSTRUCTION COSTS</u>				
2.1 Execution of the sample (91 systems for 126 communities)	27 months			
2.2 Execution of 135 systems (144 communities)				
2.3 Drilling equipment	cutoff date bidding			
IV. <u>ASSOCIATED COSTS</u>				
4.1 Vehicles				
4.2 Technical Cooperation				

9. Beginning of the program

- 4.16 Plans and specifications at the construction level are available for the 91 systems that make up the representative sample. This would make it possible to begin the corresponding works without delay.
- 4.17 The studies and designs corresponding to the remaining 135 systems will be completed during the first year after the beginning of the subprogram and this would make it possible to invite the respective bids immediately after the design is completed. Assuming that the first design can be completed at the time of the signature of the contract, there would be a maximum period of three years and nine months and, if bids are put out for the final work after 21 months, more than 18 months would be available for its completion, which would present no difficulties. The executing agency has been informed of the maximum period of two years from the signature of the proposed loan contract for the material initiation of the works.
- 4.18 It is estimated that the competitive bidding and award procedures for the purchase of the 5 motorized well drilling rigs will be completed within one year from the date of the contract.
- 4.19 The vehicles to be purchased will be intended for the provincial services that will supervise the works and may be delivered within a maximum period of one year without constituting a constraint on the program since these services at present have transport facilities with which to begin their work.
- 4.20 It is planned to conduct training courses for middle-level operating and maintenance personnel of the new systems to be constructed. This activity was also carried out under loan no. 302/SF with complete success by hiring local instructors. It is planned to initiate these activities at the beginning of the second year.

10. Retroactive financing of expenditures

- 4.21 Since the program to be financed is a continuation of that financed under loan 302/SF-AR and in order to prevent any interruption in its operations, the SNAP proposes to begin without delay the subprojects that are part of the sample presented to the Bank and to use the bidding procedures employed under the earlier loan. It is thus anticipated that before the signature of the contract the SNAP will have awarded contracts for works and have incurred expenses in an amount equivalent to US\$2,000,000 for works open to international bidding and of about US\$2,000,000 for works open to national bidding.
- 4.22 Accordingly, it is recommended that the loan contract authorize the use of up to the equivalent of US\$2,000,000 of the proceeds of the Bank's

financing, of which US\$1,000,000 would be chargeable to the foreign exchange proceeds of the loan out of ordinary capital resources and US\$1,000,000 to the resources of the FSO for the purpose of covering investments already made and/or obliigated in the subprogram before the date of the loan contract but subsequent to December 1, 1976, provided that the above mentioned expenditures or commitments comply with the characteristics of the program and are accepted by the Bank.^{1/}

- 4.23 It is likewise recommended that the loan contract authorize the recognition as part of the local contribution to the program, of the disbursements made and of the commitments assumed by the executing agency up to an amount equivalent to US\$2,000,000 corresponding to credits formalized before the date of the loan contract but subsequent to 1 December 1976, provided that the credits comply with the characteristics of the subprogram and there is no objection on the part of the Bank. ^{2/}

11. Bidding plan

- 4.24 The following table shows the plan for the international calls for bids for which provision has been made in the subprogram. It should be noted that bids will be invited on the 135 systems that have still to be designed as and when the design of each system is completed, up to a cutoff date which has been fixed a 21 months after the signature of the contract in order to comply with the recommendation that the physical works begin not later than 24 months after the signature of the contract.

<u>In thousands of US\$</u>					
		<u>Year I</u>		<u>Year II</u>	
		I	II	I	II
1.	Representative sample 91 systems		7,400	7,400	3,700
2.	Execution of 135 systems		8,200	8,200	3,300
3.	Drilling equipment		1,400	-	-
4.	Vehicles		250	-	-
			17,250	15,600	7,000
					TOTAL:
					39,850
					111111

^{1/} See Resolutions paragraph 8 (c).

^{2/} See Recommendations part 1 (h).

12. Disbursements schedule

- 4.25 In accordance with the general approach of the Subprogram the disbursements will be made in a period of 4 years, as shown in the following tentative schedule:

		<u>In US\$ thousands</u>				
		<u>Year I</u>	<u>Year II</u>	<u>Year III</u>	<u>Year IV</u>	<u>Total</u>
<u>IDB Contribution:</u>	OC	2,865	3,253	3,026	1,126	10,270
	FSO	7,458	8,468	7,875	2,929	26,730
<u>Local Contribution</u>		<u>9,487</u>	<u>9,809</u>	<u>8,349</u>	<u>2,355</u>	<u>30,000</u>
		19,810	21,530	19,250	6,410	67,000
		111111	111111	111111	111111	111111

13. Operation and maintenance of the systems

- 4.26 The operation and maintenance of the systems will be the responsibility of the community agencies to be created in the same way as under loan 302/SF. These local agencies, which in most cases would be cooperatives, would have already been set up before the works are begun and would participate during the process of execution and would receive training from SNAP in technical administrative and financial aspects to enable them to manage the systems independently. The Bank would require the adoption of a maintenance program and would reserve the right to supervise it. ^{1/} In the model agreement that would be signed between the province and the community, the functions and the responsibilities the local agencies would assume are clearly set forth.

14. Rate system

- 4.27 In the systems constructed under loan 302/SF-AR, rates that were to cover at least the operating and maintenance expenses of the system and debt service were applied. On the basis of the income levels of the region, the SNAP was also to endeavor to cover the depreciation of equipment and installations. In no case is the annual cost of the service to exceed the equivalent of the minimum wages for 14 days.
- 4.28 In view of the experience gained in earlier loans, the SNAP is of the opinion that the rates of the new program should be more flexible in order to allow the poorer communities to bear only part of the cost. It is believed that

^{1/} Recommendations, paragraph 1 (f).

the minimum rate should cover operating costs and depreciation calculated at 2% per annum. This rate would coincide with Bank Alternative No. 4, which stipulates that the rates of the specific systems connected with the loan are to produce at least sufficient income to cover the operating costs of the systems including those relating to administration, operation, maintenance and depreciation.

- 4.29 In this regard it should be pointed out that, in all the rural programs financed by the Bank Alternative No. 5 has been used and that it stipulates that the rates must cover the operating costs and, as far as possible, depreciation. 1/

B. Urban subprogram

- 4.30 The CNAS would transfer the resources assigned to the urban subprogram through a loan contract that would be signed with the OSN. This contract would include conditions similar to those of the principal contract and would incorporate the additional interests and commissions of CNAS, its guarantee clauses and the special commissions which are established in the Bank contract for the execution of the program. The extra charge of the CNAS for interest and commissions may not exceed 1% of the costs financed by the Bank. The CNAS will also extend an additional loan out of its own resources up to an amount estimated at the equivalent of US\$34,000,000 and intended for the financing of the local costs of the subprogram. 2/

1. Procedure for the purchase of the goods and services and for the award of contracts

- 4.31 In executing the subprogram the same procedures for the purchase of goods and services and for the award of contracts as are described in paragraphs 4.03 and 4.04 will be used.

2. Execution schedule

- 4.32 The following diagram shows the development of the activities of the subprogram over a maximum period of 4 years. The most important aspect of this programming are commented on below:

1/ Resolutions paragraph 8 (f).

2/ Resolutions

DESCRIPTION	YEARS			
	I	II	III	IV
<u>I. ENGINEERING AND ADMINISTRATION</u>				
1.1 Studies and design	////			
1.2 Supervision and administration	////////////////	////////////////	////////////////	////////////////
<u>II. DIRECT CONSTRUCTION COSTS</u>				
2.1 Termination Paitoví-Floresta River	////	////////////////	////////////////	////////////////
2.2 Floresta-Matanza	[L]////	////////////////	////////////////	////////////////
2.3 Matanza Lift Station	[L]////	////////////////	////////////////	////////////////
2.4 Pressure lines (3 biddings)	[L]////	////////////////	////////////////	////////////////
2.5 Mains and distribution networks (4 biddings)	[L]////	////////////////	////////////////	////////////////
2.6 Purchase and installation of meters:				
2.6.1 120,000 meters	[L]////	////////////////	////////////////	
2.6.2 180,000 meters		[L]////	////////////////	////////////////

4.33 ONS has begun work on the redesign of the mains networks to 350 liters/inhabitant/day. In addition, it has made a start on the final design of the distribution networks of which only a preliminary project was available. It is estimated that these activities will require a period of 6 months, i.e. that they would be completed before the signature of the proposed loan contract.

4.34 According to the contract between OSN and the national consortium formed by Gesiemes, S.A.; Francisco Natino e hijos, S.A. and Polledo S.A., the construction of the Paitoví-Floresta underground river is underway. The

diameter of this underground river is 3.75 m. and its total length 9251 m. of which to date 2372 m have been completed and 6877 are outstanding. The reformulated construction procedure provides for simultaneous execution on 20 working fronts, 120 m equidistant, and it is estimated that there will be no difficulty in obtaining and advance on each front of 1.5 m. every 4 days including the work tunnel, pre-sheathing and final sheathing. At this rate of advance and taking into consideration possible contingencies, it may be estimated that it will be terminated in a maximum period of 3-1/2 years. Notwithstanding this estimate, because this work is the critical activity of the subprogram the proposed loan contract would include a clause stipulating a minimum semi-annual work advance to be reached by the contractor and the necessary corrective measures anticipated in the event of noncompliance. 1/

- 4.35 The length of the Floresta-Matanza underground river is 6700 m. and its diameter 3.00 m. It is anticipated that in the international call for bids to be held the contract will be awarded to a foreign enterprise that will use construction procedures recognized as standard in digging tunnels, that is to say, the use of the shield. With this method, an advance of 10.00 m. per day per work front can be obtained. On this basis a reasonable period of construction of 3 years, which can be met without difficulty has been estimated. This period may even be reduced if work is carried on on more than one front.
- 4.36 No problems are anticipated in having the La Matanza Lift Station completed in a period of 3 years. There is even extra time available that will make it possible easily to deal with any mishap.
- 4.37 Three invitations to bid will be put out for the pressure lines whose installation is to be completed simultaneously in three years.
- 4.38 Four invitations to bid will be put out for the mains and distribution networks whose simultaneous execution is to be completed in three years.
- 4.39 Two invitations to bid will be put out for the purchase and installation of meters. Bearing in mind the fabrication and installation time, a total period of three years is considered reasonable.
- 4.40 The proposed execution schedule is realistic and may be complied with in a period of 4 years. In view of the priority assigned to government contributions to the project financed with external credits from international organizations and the system of periodic adjustments of the contracts, no difficulties such as those encountered in earlier loans are anticipated for the orderly execution of the projects. The single critical activity would be the termination of the Paitoví-Floresta underground river. The other activities all have "floating time" available within the period scheduled for the termination of the works.

1/ Recommendations paragraph 1 (a)(i).

3. Bidding schedule

- 4.41 The following table summarizes the plan for the international biddings that will be held for the purchase of materials, equipment and execution of works.

		<u>In US\$ thousands</u> 1/			
		<u>Year I</u>		<u>Year II</u>	
		<u>I</u>	<u>II</u>	<u>I</u>	<u>II</u>
1.	Floresta-Matanza River	16,700			
2.	Matanza Lift Station		9,500		
3.	Pressure lines				
	Sector No. 1		2,700		
	Sector No. 2		2,600		
	Sector No. 3		2,600		
4.	Mains and distribution networks				
	Sector No. 1		5,700		
	Sector No. 2		5,500		
	Sector No. 3		5,500		
	Sector No. 4		5,500		
5.	Meters				
	First Stage 120,000	6,000			
	Second Stage 180,000			9,000	
		22,700	39,600	9,000	---
				TOTAL:	71,300
					11111111

4. Disbursement schedule

- 4.42 Bearing in mind the different stages of execution of the subprogram, the disbursement would be made in four years, as shown in the following tentative schedule:

1/ Does not include escalation or contingencies estimated at US\$19,200,000.

In US\$ thousands					
Description	Year I	Year II	Year III	Year IV	Total
<u>IDB Contribution</u> : OC	1,908	7,030	7,365	5,592	21,895
FSO	2,100	7,740	8,108	6,157	24,105
<u>Local Contribution</u> :	<u>6,901</u>	<u>19,053</u>	<u>19,333</u>	<u>13,713</u>	<u>59,000</u>
	10,909	33,823	34,806	25,462	105,000
Local contribution works being constructed					<u>25,500</u>
				TOTAL:	130,500 1111111

5. Supervision of Executing Agency

4.43 The Engineering Department of OSN would be responsible for the general supervision of the project through its Studies and Designs Department and Works Department. The Studies and Designs Department is responsible for the designs of the project and their updating.

4.44 The Works Department would be responsible for the supervision of the works and, for that purpose, inspection offices would be set up and staffed by technical and administrative personnel to the extend necessary. Provision is made for setting up three inspection offices that would supervise the following aspects of the project: a) Floresta-Matanza underground river; b) Lift station and pressure lines: and c) mains and distribution networks.

4.45 The unit responsible for the inspection of the underground river would have the following staff:

- 1 chief engineer
- 1 assistant engineer
- 6 construction inspectors
- 1 surveyor
- 2 engineering students for certifying works
- 2 foremen in the reinforced concrete plant
- 1 administrative officer
- 2 drivers

The two other inspection units would have a similar staff.

6. Operation and maintenance

4.46 The operation and maintenance of the system to be constructed will be the responsibility of the OSN, through the Villa Devoto Service, to

which the La Matanza district is organically attached. This department is the best staffed of the nine that make up the structure of the OSN and will not need any increase in staff in order to carry out the functions assigned to it. To strengthen the basic organization responsible for the present system the necessary personnel would be transferred from the Regional Department, especially technical personnel and especially for the operation of the lift station. The Bank will ask for a program of maintenance of the works to be constructed and will reserve the right to supervise it. 1/

7. Urban rates

- 4.47 The present rate system fixes a rate in terms of the area of the site and the total covered area and classifies the real estate served into three categories:

Category A: Buildings that use water for ordinary drinking and hygiene purposes, whether single family buildings, industrial premises or commercial premises.

Category B: Buildings that made more intensive use of water: (i) for drinking and hygiene; (ii) as a necessary element in the business or as a part of a manufacturing process; and (iii) water is a fundamental element of the finished product.

Category C: Buildings that do not fall into categories A or B and in which no correlation can be established between the surface area and water use.

- 4.48 A fixed quota is applied to category A buildings and is established in accordance with the following formula:

$$C \ 1 \ (S.E.T. + s.t.) \ Z.K.$$

- C: Monthly cost
S: Covered area
E. Adjustment coefficient weighting the building
T: Monthly rate per m² of covered surface
s: Surface area of the lot
t: Monthly rate per m² of the lot
Z: Adjustment coefficient based on the location of the building and the value of the land
K: Updating coefficient based on the operating costs

- 4.49 For category B and C Buildings, the use of meters is compulsory. In category B a basic consumption is assigned to the building, based on the covered area and, when that is exceeded, the excess is invoiced by

1/ Recommendations paragraph 1 (f).

metered service. In category C a fixed quota proportionate to the area of the lot and the total measured consumption is paid.

4.50 In the period 1961/76 the operations of the enterprise showed a considerable deterioration because the authorized rate adjustments did not properly off-set the sharp increases in costs, and the result was substantial deficits which were covered by means of central government subsidies. Studies made show that up to June 1976 OSN revenues covered approximately 29% of its operating and maintenance costs. Accordingly, the present government has established as part of its financial program for the Nation a policy of self-financing of public utilities based on realistic rates that adequately cover their operating and financial costs.

4.51 Accordingly, the new authorities of the enterprise have taken the necessary steps to reestablish the rate rules stipulated by the organic law of the enterprise, which in this respect reads as follows:

Article 69: Rates shall be determined on the basis of the operating costs of the enterprise at its optimum level of efficiency.

Article 76: OSN shall, as and when circumstances so permit, study a system of domiciliary measurements for water supply.

Article 78: OSN shall determine the results of its financial management, which shall be based on generally accepted accounting principles, by adding to the operating costs the depreciation of goods and the interest accruing from financial loans assigned to operation.

4.52 To this end, the OSN administration decided to adopt the following measures:

- (a) To make a census of consumers and a detailed study of operating costs
- (b) To establish the policy of measured consumption by steps, based on a program for the mass installation of meters and by installing the first group of 40,000 units in Categories B and C buildings.
- (c) To begin a study of the new rate system.
- (d) To obtain the approval of the government for a cumulative monthly 15% rate increase effective July 1976 until June 1977. This is the present system.
- (e) To reduce effective July 1977 the increase in the rate in order to attain the level of self-sufficiency by the end of the year.

4.53 In accordance with this policy, the OSN has, since July, been applying a cumulative increase of 15% per month on its rates, which meant an increase of 130% in the second half of 1976 at a time when wages and

salaries were virtually frozen. Despite the substantial rate increase, the regular revenue of the year was not sufficient to offset, during the fiscal year, the deficit that accrued in the first half of the year. The resulting deficit was covered by contributions from the National Government. It is expected that, with the anticipated increases, the degree of coverage will exceed 100% by December 1977.

- 4.54 The new system that is being studied will endeavor to raise the level of collections of the enterprise and, at the same time, correct the injustice resulting from charging for services in accordance with a rate that is not directly related to the actual consumption of the users.
- 4.55 The study of the rate system, whose basic parameters are operating costs and the volume of water delivered to each customer, is expected to be completed by the end of 1978. By then the number of meters in Greater Buenos Aires for the use of the rates on metered consumption will already have increased to 40,000 units.

8. Recommended service rate for La Matanza

- 4.56 The average rate applied to La Matanza in 1976 amounted approximately to the equivalent of US\$18 per annual connection. 1/ The above mentioned policy of a monthly increase of 15% will be continued up to July 1977 when it will be reduced to 8% monthly 2/, it may thus be estimated that a real average increase of 50% will be obtained in 1977, that is to say, the rate would represent the equivalent of US\$27 per annual connection. The financial projections of the project under consideration, which are analyzed in Chapter VIII, are based on the assumption that a rate of US\$85 per annual connection would be necessary in the fifth year when the new works enter into service in order to cover the operating costs (administration, operation and maintenance) and the IDB debt service. It is therefore foreseen that during the construction period a real rate increase of 25% per annum will be necessary. It is therefore recommended that:

- (a) Alternative No. 3 of the rates studied by the Bank be adopted. It coincides with article 78 of the law governing the Enterprise and stipulates that the rates of the specific system connected with the loan should produce (i) at least sufficient revenue to cover all the operating costs of the system, including those relating to administration operation, maintenance and depreciation and (ii) if the cash flow for the above plus any income from assets are not sufficient to cover the timely amortization of the loan, the rates shall generate the additional income necessary for that purpose.3/

1/ Calculated on the basis of 44,000 connections serving an estimated population of 290,000 inhabitants, at the rate of 6.6 inhabitants/connection i.e., 1.67 families per connection.

2/ Inflation in the first quarter of 1977 was on the order of 6% to 7% or 101%-125% per annum.

3/ See Resolution paragraph 8 (g).

- (b) That the borrower undertakes to increase the rate by at least 25% per annum in real terms effective January 1, 1978, with a view to compliance with the recommended rate clause when the system begins to operate. 1/
- (c) That the financial statements to be submitted by the borrower each year demonstrate that the above-mentioned recommendation has been complied with.

4.57 The rate level when the works enter into service would be US\$7.08 per monthly connection or US\$4.24 per family per month, which would give an average consumption per family of 35 m³ calculated on the basis of 0.12 m³. 2/ For low income families a basic consumption of 20-30 m³ per month has been estimated that is, US\$2.40-US\$3.60 which represents about a monthly wage for this social stratum 3/ and is considered feasible.

C. Urban Meters Plan

1. Present situation

4.58 At present 90,500 meters are installed throughout the whole country and of these 68,000 are read and billed. In recent months a further 14,300 meters were distributed and installed. A study on measured service that is being made by the Enterprise throughout the country is also in its final phase. Its purposes are as follows:

- (a) To obtain a list of all the properties which, in accordance with the rate system in force, should have a meter (census).
- (b) To ascertain the working order of the meters installed.
- (c) To determine the quantities, by diameter and makes of the existing meters.

4.59 Furthermore, and with a view to the early mass installation of meters, a complete study has been made to define the most suitable meter, and technical specifications have been prepared for a call for bids at an early date for the first batch of 40,000 units which the Enterprise is to finance out of its own resources.

2. Execution of the plan

4.60 For the mass installation of 340,000 meters, the Enterprise has prepared a program and schedule, the details of which are summarized below:

1/ See Recommendations paragraph 1 (g)(ii).

2/ See Annex 10, rate clause.

3/ See Chapter VII - Socio-economic evaluation.

EXECUTION SCHEDULE 1/

	Y E A R S				
	1977	1978	1979	1980	1981
		I	II	III	IV
1. New rate system					
a) Study	//////////	//////////			
b) Approval by Government		///			
2. Immediate Stage 40,000 meters					
a) Bidding and award	///				
b) Fabrication and installation		//////////			
3. First Stage 120,000 meters					
a) Bidding and award		///			
b) Fabrication and installation			//////////	//////////	
4. Second Stage 180,000 meters					
a) Bidding and award			///		
b) Fabrication and installation				//////////	//////////

1/ Excluding 100,000 meters in La Matanza.

4.61 The execution of this program is thus divided into three stages. 1/

(a) Immediate stage: Purchase and installation of 40,000 meters financed by the Enterprise. These meters will be installed in the Federal Capital and in certain localities in Greater Buenos Aires for the large commercial and industrial consumers and buildings in Category C. 2/

(b) Second stage: Purchase and installation of 120,000 meters financed by the Bank which will be installed as follows:

Federal Capital	20,000
Greater Buenos Aires	40,000
Mar del Plata	30,000
Rosario	15,000
Santa Fe	10,000
San Juan	5,000
	<u>120,000</u>
	1111111

(c) Third Stage: Purchase and installation of 180,000 meters financed by the Bank, which would be installed in accordance with the data of the census that is being prepared and, at all times, the criterion already established of giving priority to large consumers: commerce, industry, buildings.

4.62 As regards maintenance activities, the bidding conditions specified that the manufacturers must not only include the provision of the meters but also their installation and their maintenance for a period of 5 years. On the basis of its present manning tables and existing workshops the Enterprise will set up the necessary crews and the maintenance workshop in this period for each regional service.

4.63 As regards reading and billing, these activities will be the responsibility of the district staff of the Enterprise, which already includes meter readers as well as a commercial area for such functions.

4.64 One of the most important aspects of the task of implementing the meters plan is the fact that the Enterprise has just inaugurated a computer center which would be responsible for recording, control, billing and other activities and will step up its work to the levels required for the efficient conduct of all the necessary activities.

1/ See Recommendations, paragraph 1 (a)(ii) and (b)(i).

2/ OSN completed its review of the plans and specifications for the installation of these meters. It is proposed to invite bids in August and to award the contracts in October next.

3. Coverage Targets

- 4.65 At present there are approximately 1,870,000 connections in the country. Of these 90,500 have meters, i.e., 4.8%.
- 4.66 By the end of the construction period, 340,000 meters will have been installed. These correspond to the meter program plus 100,000 for La Matanza. Assuming a 2% increase in connections in the four-year period there would be about 2,000,000 connections, of which 544,500 would have meters i.e., 27%. There is no doubt that this degree of coverage is still insufficient but the tremendous effort the Enterprise will have to make in order to achieve it in only four years must be recognized. It is hoped that once the measured service criterion is introduced every new installation will have its meter, and the program will continue to purchase more meters until within 10 years coverage will be more than 80%. The goal of the program i.e., that 440,000 meters should be installed in a period of 4 years, is a reasonable upper limit based on the possibilities of the supply, as well as the availability of specialized personnel for the installation, testing and maintenance, of the meters.

4. Recommendations

- 4.67 It is recommended that the proposed loan contract contain a clause that ensures the fulfillment of the initial goal envisaged, i.e., to increase the present 120,000 meters to 544,500 meters in accordance with the following breakdown: 1/

At the end of first year of the contract	40,000 meters
At the end of the third year of the contract	120,000 meters
At the end of the fourth year of the contract	180,000 meters

D. Bank Supervision

- 4.68 Bank supervision will be the responsibility of the Field Office which will be assigned an additional international specialist in sanitary engineering.

1/ Recommendations paragraph 1(a)(ii) and (iii) and (b)(i).

V. THE BORROWER AND THE EXECUTING AGENCIES

A. The Borrower

- 5.01 The borrower would be the Government of Argentina. In accordance with paragraphs 3 and 28 of Article 67 of the National Constitution, Law No. 16432 authorizes the Executive Branch to contract loans with international agencies of which Argentina is a member. In each case, the Ministry of Economic Affairs designates the executing agency which is required to carry out the pertinent project in accordance with the terms and conditions of the relevant contract. For the program to be financed out of the loans proposed in this document, the National Rural Water Supply and Sanitation Service (SNAP) has been designated the executing agency for the rural subprogram and the National Savings and Insurance Institute (CNAS) will act as the financial agent for the urban subprogram and the National Sanitary Works Enterprise (OSN), as the executing agent of the works included.

B. National Rural Water Supply and Sanitation Service (SNAP)

- 5.02 The National Rural Water Supply and Sanitation Service (SNAP) is a self-governing agency which was established under Decree No. 9762 of December 2, 1964. Its present structure, purpose and functions are defined in Decree No. 2629 of April 5, 1973. SNAP comes under the authority of the Ministry of Economic Affairs through the Department of State for Transportation and Public Works, Subsecretariat of Water Resources.

1. Objectives

- 5.03 The purposes of SNAP are to promote, supervise and administer the water supply and sanitation program for rural communities.
- 5.04 Specific projects are executed through the Provincial Water Supply Services (SPAR) and local community agencies. Relations between SNAP and these agencies are governed by agreements between the Federal Government and the provinces and between the provinces and the municipality or the community agency.

2. Organization and Administration

- 5.05 A General Administrator appointed by the Executive Branch is responsible for the administration of SNAP. In accordance with the above-mentioned Decree No. 2629, which established the organizational structure of SNAP, the General Administrator is responsible for proposing policies and executing plans and programs approved by the Department of State for Transportation and Public Works, as well as for coordinating SNAP activities with those of the provincial governments and of the communities and for supervising the execution of plans, administering funds, and directing the activities of the different areas of the agency. The Administrator is the legal representative of the agency for signing agreements, purchase and sale of real estate, judicial and extrajudicial

arrangements, etc. He is assisted in his works by a Deputy Administrator, who is responsible for the operation of the agency in the absence of the Administrator. He is supported by an internal audit unit and a legal counsel's office, which are under the direct authority of the General Administrator. The organization chart of SNAP appears in Annex 16.

- 5.06 Under the authority of the Administrator are two general directorates: the Technical General Directorate and the Economic and Financial General Directorate, the Regional Branches and the Planning and Management Control Department.
- 5.07 The Technical General Directorate includes the Department of Engineering and of Promotion. It is responsible for examining and approving the projects for the provinces, proposing technical engineering and social promotion standards and amendments thereto, promoting the execution of the works, supervising their construction, and guiding the programming of activities for the implementation of the approved plans.
- 5.08 The Economic and Financial General Directorate includes the Accounting Department and the Economic and Financial Studies Department as well as the following divisions: Treasury, Personnel and Registry (Mesa de Entradas y Salidas). Its functions are to assist the Administrator in the economic, financial, accounting and assets management of SNAP.
- 5.09 The Economic and Financial Directorate is responsible for proposing the budgets of the agency, evaluating the projects from the economic and financial point of view as well as the accounting records of the agency, preparation of reports, supervision of the execution of the budget, management of funds available to it and administration of personnel, registry and general services.
- 5.10 The Planning and Management Control Department is responsible for the evaluation of the execution of plans and programs, proposes amendments to them, compiles information on each sector, analyzes and evaluates financial demand, and proposes systems of management control that will make it possible to identify and correct faults in the implementation of the programs.
- 5.11 The Regional Branches, of which there are five, cover all the provinces of the country and have their headquarters in the cities of La Plata, Corrientes, Tucuman, Cordoba and Viedma. They are responsible for coordination between SNAP and the Provincial Services, for directly supervising the implementation of plans and projects, and for studying and providing advice to the provinces on projects, their timing and form of execution; compliance with technical standards of engineering and promotion; operation and maintenance of services in operation; and financial requirements for construction works and fulfillment of the commitments acquired by the Province and the communities.
- 5.12 At the head of each Regional Services there is an engineer who represents SNAP vis a vis the provinces. Each Regional Service comprises three units: engineering, administrative and accounting control, community promotion.

3. SNAP Personnel

- 5.13 The policy of freezing vacant posts in government service has affected the recruitment of personnel for the agency. The administrative structure as designed provided for a staff of 131 posts. On March 31, 1977 SNAP had a staff of 69 employees. The shortage of personnel is more acute in the Regional services, which at present have only three officials. The present SNAP staff is as follows:

	<u>Professional</u>	<u>Technical</u>	<u>Administrative</u>	<u>Total</u>
Administration	3	-	-	3
Technical Management	13	3	1	17
Economic and Financial Management	7	-	35	42
Planning	2	-	2	4
Regional	2	-	1	3
Total	<u>27</u>	<u>3</u>	<u>39</u>	<u>69</u>
Percentage	39	4	57	100

- 5.14 Although the present administrative staff of SNAP has so far made it possible for the program to be conducted in an acceptable manner, it is necessary to strengthen it so as to enable SNAP to continue to perform its functions satisfactorily during the new stage which represents an expansion of its present activities. To that end, provision has been made for additional personnel and an appropriate salary scale so as to enable new officials to devote themselves exclusively and full time to work connected with the supervision and administration of the project. Accordingly, the resolution makes it an obligation of the debtor to submit to the Bank before the first disbursement of the loan a statement of the measures taken to provide SNAP with a sufficient number of qualified personnel to undertake the expansion of the supervisory and administrative activities involved in the execution of the subprogram. 1/

4. Financial Administration

- 5.15 The registration system of SNAP consists of budgetary accounts which are basically classified by current and capital expenditures. It also maintains economic and financial records which show the progress of the program financed by the Bank. The internal control measures that have been established are considered adequate.
- 5.16 SNAP is supervised by: a) the Office of the Accountant General of the Nation, which exercises control over budgetary movements and b) the Court of Accounts of the Nation which has a permanent representative in SNAP who audits the movement of funds before, during and afterwards.

1/ See Resolution, paragraph 8(d).

5. Budgetary System and Execution

- 5.17 The operating budget of SNAP is provided by appropriations in the general budget of the Nation, through the Department of State for Water Resources. The following table shows in summary form the execution of the current expenditures and capital expenditures budget of SNAP in 1974, 1975 and 1976:

National Rural Water Supply and Sanitation Service
Budgetary Execution
(In millions of Argentine pesos)

	<u>1974</u>	<u>%</u>	<u>1975</u>	<u>%</u>	<u>1976</u>	<u>%</u>
Current expenditures						
Personnel	5.8	8	14.5	7	36.0	3
Goods and nonpersonal services	3.4	5	5.4	3	24.3	2
Interest	1.7	2	3.1	2	23.5	2
Transfer payments to provinces	4.0	6	4.9	2	3.6	-
	<u>14.9</u>	<u>21</u>	<u>27.9</u>	<u>14</u>	<u>87.4</u>	<u>7</u>
Capital expenditures						
Capital goods	0.2	-	1.2	1	7.4	1
Transfer payments to provinces	12.1	17	49.8	25	390.0	33
Loans to provinces	42.4	60	114.3	59	690.0	58
Amortization of loans	1.4	2	1.7	1	12.8	1
	<u>56.1</u>	<u>79</u>	<u>167.0</u>	<u>86</u>	<u>1,100.2</u>	<u>93</u>
	<u>71.0</u>	<u>100</u>	<u>194.9</u>	<u>100</u>	<u>1,187.6</u>	<u>100</u>

- 5.18 As the figures included in the foregoing table show, most of the funds assigned to SNAP have been used for capital expenditures. For the most part they have been applied to the construction of rural water supply systems by two methods: a) transfer payments to provinces, which are nonrecoverable contributions of the Government of Argentina and usually represent its contribution to the projects financed in part by the IDB; for the last IDB loan, 302/SR-AR, the contribution of the Government of Argentina was US\$6.4 million, the highest payment during any one year being US\$3.1 million, which is why the contribution of US\$13.3 million over a four-year period, envisaged in this project, is considered feasible; b) loans to provinces, which in almost all cases constitute on-lending of the IDB loan. This on-lending is made to the provinces, which in turn make loans to the communities at an interest rate of 6% per annum on the balances. These loans must be repaid in 40 semi-annual installments, which are adjusted in order to maintain parity with the dollar.

- 5.19 The share of current expenditures in total expenditures has decreased: 21% in 1974, 14% in 1975 and 7% in 1976. Among current expenditures the main item is personnel costs and its percentage share has declined, primarily because of the decision of the Government to freeze vacant posts throughout the official sector. The percentage increase in expenditures over the previous year are as follows:

	<u>1975</u>	<u>1976</u>
Current expenditures	87%	213%
Capital expenditures	<u>198</u>	<u>559</u>
	<u>175%</u>	<u>509%</u>
	=====	=====

- 5.20 Bearing in mind the fact that inflation in Argentina was 335% in 1975 and 348% in 1976, it is to be noted that, in 1975, expenditure in real terms decreased compared with 1974 since the rate of increase was lower than that of inflation. On the other hand, in 1976, capital expenditure increased in real terms while current expenditures continued to decline. The budgetary execution has not been converted into dollars since the economic situation in Argentina in recent years would introduce serious distortions. However, in order to give an idea of the magnitude, 1976 expenditures are converted at the average rate for the year in the following table:

	<u>Thousands of US\$</u>	<u>1/</u>
Current expenditures	580	
Capital expenditures	<u>7,350</u>	
Total	<u>7,930</u>	
	=====	

6. National Revolving Fund

- 5.21 For the execution of the rural water supplies program and on the occasion of loan 114/TF, this fund was established for the purpose of making it possible to channel the resources intended for the financing of the Plan. It is made up of resources coming from three different sources:

- (a) the proceeds of IDB loans;
- (b) the funds contributed as counterpart funds by the Government of Argentina, the provinces, and the communities;
- (c) that portion of rate collections intended for servicing the debt with the Bank.

1/ 1 US\$ = 149.68 Argentine pesos.

Drawings are made against the Fund for:

- (a) the payments of resources which SNAP makes to the provinces for financing works; and
- (b) the financial and amortization expenses for IDB loans.

5.22 Since the collections do not generate surpluses that can be used for financing additional investments, the Fund has served rather as a legal framework for facilitating the grant of loans between the SNAP and the SPARS and between the SPARS and the communities benefitted and for enabling the SNAP to receive from the communities that portion of the service rate collections intended for servicing the IDB loan. The SNAP is in the process of mechanizing the accounting of its operations and is about to feed the computer with information on the resources mobilized and the expenditures made; this will be completed by the end of the present year. Accordingly, in analyzing this program, only independent, unconsolidated information from SNAP and SPARS has been available and is included in paragraphs 5.17 and 5.29.

C. The Provincial Water Supply Services and the Community Agencies

1. The Provincial Rural Water Supply and Sanitation Services (SPAR)

5.23 The SPARS are provincial agencies under the authority of the Ministries or Departments of Public Works, Economic Affairs or Social Welfare of the respective provinces. Between 1965 and 1967 a total of 22 SPARS were set up.

(a) Functions

5.24 The function of the SPARS is to plan and execute rural water supply works when instructed to do so by SNAP and/or the province concerned and to supervise the operation and administration of existing systems. The works commissioned by SNAP are governed by specific agreements signed between the Government of Argentina and each of the provinces.

(b) Organization

5.25 The organizational structure of the SPARS is basically the same as that of the Regional Offices of SNAP. Accordingly, they have three well-defined administrative areas: (a) engineering; (b) social promotion and (c) economical-financial. The organization charts of four SPARS, which may be considered typical, are set forth in Annex 17. The specific functions of the three basic units of each SPAR are as follows:

(i) Engineering

- a. Preparation and Evaluation of Projects.
- b. Execution of works or, if executed under contract, their supervision; and
- c. Advisory services and cooperation in maintaining the services and supervising their operation and maintenance by the community agencies.

(ii) Administration Accounting

- a. Administration of the special deposit account for resources to be invested in works and funds collected from the users in accordance with established rates.
- b. General accounting of the provincial services; and
- c. Advisory services and supervision of administrative and accounting functions which are the responsibility of community agencies.

(iii) Community Promotion

- a. Economic and social studies.
- b. Promotion of the Plan at the rural community level.
- c. Health education.
- d. Organization of community units.

(c) Personnel

5.26 The personnel of the 22 SPARS amounts to 1093 officers and employees classified as follows:

	<u>Number</u>	<u>%</u>
Professionals	173	16
Technical	433	40
Administrative	216	20
Service	271	24
Total	<u>1,093</u>	<u>100</u>
	=====	=====

The average number of SPAR employees is 39, within a range of 9 minimum and 60 maximum, with the exception of the SPAR in the province of Tucuman, which has 268 officers and employees, of which 158 are manual workers. The number and qualifications of the personnel of the SPARS is considered to be adequate for the execution of the program

(d) Financial Administration

- 5.27 In most cases the accounting system of the SPARS is a budgetary system and is governed by the public accounting standards in force in each province. The SPARS are subject to the prior and/or subsequent supervision of the Offices of the Accountants General of the provinces, the Courts of Accounts and similar control agencies.

(e) Resources

- 5.28 Funds for salaries and operation of the SPARS are obtained from budgetary items assigned to the provincial agency in which they are included. The agreements between the SNAP and the provinces also include an obligation on the part of the Government of Argentina to contribute to the operating costs of the SPARS, which are used when the provincial contributions are not sufficient to cover the operating costs of the SPARS. Investment expenditures are covered by SNAP allocations, with budgetary resources and the proceeds of the IDB loan, the allocations of the provinces and the contribution of the communities.

(f) Budgetary Execution

- 5.29 The consolidated budget execution of current expenditures and capital expenditures of the Provincial Rural Water Supply and Sanitation services (SPAR) for the years 1974, 1975 and 1976 are set forth below:

(In millions of Argentine pesos)

	1974		1975		1976	
	Amount	%	Amount	%	Amount	%
<u>Current expenditures</u>	<u>55.2</u>	<u>26</u>	<u>140.8</u>	<u>29</u>	<u>608.6</u>	<u>21</u>
<u>Capital expenditures</u>						
SNAP transfers	12.1	6	49.8	10	390.0	13
SNAP loans	42.4	20	114.3	23	690.0	23
Funds from provinces						
and communities	100.6	48	183.2	38	1,249.2	43
	<u>155.1</u>	<u>74</u>	<u>347.3</u>	<u>71</u>	<u>2,329.2</u>	<u>79</u>
Total expenditures	<u>210.3</u>	<u>100</u>	<u>488.1</u>	<u>100</u>	<u>2,937.8</u>	<u>100</u>

- 5.30 About three-quarters of the budget of the SPARS has been devoted to capital expenditures and the remaining quarter to current expenditures. During the three years analyzed, capital expenditures or investments in rural water supply and sanitation have on average been financed 57% out of funds from the provinces and communities, 30% out of SNAP loans and 13% out of SNAP transfer payments (see Budget Execution of SNAP). The increase in total expenditures of 1975, compared with 1974 did not offset the inflation in that year; therefore in real terms there was a decrease. However, in 1976 there was a real increase since while inflation was 348%, the increase in total expenditures was 502%.
- 5.31 In order to give some idea of the magnitude, 1976 expenditures are converted into dollars below at the average rate for the year.

	<u>Thousands of US\$</u>	<u>1/</u>
Current Expenditures	4,066	
Capital Expenditures		
SNAP Transfers	2,605	
SNAP Loans	4,610	
Funds from provinces and communities	8,346	
Total Expenditures	<u>19,627</u>	
	=====	

As the foregoing table shows, in 1976 the contribution of the provinces and the communities for water supply and sanitation works amounted to more than US\$8 million. This shows that the contribution of the provinces and communities to the project, which is the subject of this report, is feasible, since it amounts to US\$16.7 million over a period of 4 years. Furthermore, during the last 3 years, the provinces and communities have contributed an average of 57% of the cost of the works whereas in this project they would contribute only 25%.

2. Community Agencies

- 5.32 The operation and administration of the water systems to be constructed under the program is the responsibility of the rural community agencies, which are the result of the promotion and health education efforts made by SPAR under the supervision and with the advice of SNAP. These community agencies constitute the final link in the execution mechanism of the different stages of the plan. In most cases these agencies are cooperatives.

1/ 1 US\$ = 149.68 Argentine pesos

The usual type of community agencies organized as a cooperative consists of shareholders who at the General Meeting designate a management committee supervised by a trustee. The Committee or the Manager contracted by it designates an operator and administrator of the water service; in very small communities these posts may be held by the same person. In some provinces, however, other forms of association are used such as neighborhood boards, development societies, or user centers.

5.33 The personnel of each community agency varies considerably, according to the needs of the pertinent system. Experience with the operation of the systems constructed has been satisfactory. For the new program, the technical assistance included in the proposed financing envisages a plan of training in operation and maintenance for the personnel that will be responsible for managing the new systems.

5.34 The community agencies must be capable of acquiring rights and contracting obligations and, to that end, they are granted the necessary legal status. The statutes and regulations they issue are usually in accordance with the models prepared and provided by SNAP in this regard.

5.35 The basic functions of the community agencies are as follows:

- a. To help to create a favorable attitude among members of the community towards improving their living conditions through the Plan and other related programs;
- b. To supervise the tasks being carried out as part of the Plan with the participation of the members of the community through their individual support in activities relating to the construction of the works.
- c. To operate and administer the water systems constructed, including collection of water rates; and
- d. To serve as the organ of coordination with the SPARS.

D. National Savings and Insurance Institute (CNAS)

5.36 The CNAS is a decentralized agency of the Government of Argentina. It is institutionally independent, has legal capacity and financial independence. It was established by Law No. 9527 of 1914 and is at present governed by the Charter, as amended, approved by Law No. 12921 of 1946. Its relations with the Executive Branch are conducted through the Ministry of Economic Affairs.

1. Purpose

5.37 The purpose of the CNAS is as follows:

- a. To promote the teaching and increase in savings and thrift among all sectors of the population.
 - b. To collect savings in such ways as will stimulate their formation and development.
 - c. To provide money order services, insurance, housing loans under saving plans, collateral loans, short term loans and other services and operations aimed at disseminating and promoting savings whether for the benefit of the community or of the depositors.
 - d. To invest the funds in guaranteed operations that have a social purpose or are for the benefit of the community at large.
- 5.38 The institution is domiciled in the Federal Capital and carries out its operations through its principal place of business, the branches it has established, and the post offices throughout the republic and the offices of its agents and its own and special agencies.

2. Administrative Organization

- 5.39 The higher direction and administration of the CNAS is the responsibility of an Administrative Council consisting of a Chairman and 6 public servants as members. These public servants are: the General Administrator of Posts and Telecommunications, the Chairman of the National Educational Council, the Undersecretary for Labor and Social Welfare, the Undersecretary for Finance, a Director of the Bank of the Argentine Nation and the General Manager of the Central Bank of the Argentine Republic.
- 5.40 The administrative structure of the institution has been designed in the light of the requirements of its operations. The Chairman of the Council is the chief administrative officer of the CNAS. He directs its operations, carries out the resolutions of the Council, and is the legal representative of the institution in its relations with third parties. He appoints, promotes and terminates administrative personnel, in accordance with the pertinent regulations, and is entitled to act in and solve all matters that are not expressly reserved for a decision by the Council.
- 5.41 For the internal administration and direction of the institution, the Chairman is assisted by a General Manager who has 3 Deputy General Managers under his authority and they in turn are in charge of the operation of certain areas of the administration.

- 5.42 The Departments of Credits, Savings and Money Orders, General Accounting and Administration make up one management area. Another consists of the Departments of Life Insurance, Basic Insurance, Organization and Systems, and Operational Coordination. The third comprises the Departments of Legal Affairs, Promotion and the Summary and Security Departments.
- 5.43 Because of the nature of their functions, the Registry and the Planning and Control Offices come under the direct authority of the Office of the President. The general organization chart of the CNAS appears in Annex 18.

3. The Departmental Offices

5.44 The functions assigned to the Departmental Offices are as follows:

- i) Registry Office. It provides administrative assistance to the Administrative Council, the Office of the President, and the Office of the General Manager. It is responsible for the formal registration of all administrative decisions.
- ii) Planning and Control Office. It is responsible for the planning and control of the operations of the institution. It prepares plans of the activities, establishes quantitative targets for the different services. It is responsible for the internal audit of procedures and reports, the assets position, and the results of operations of the institutions.
- iii) Life Insurance Office. It is responsible for operations relating to group insurance and the life insurance of public service personnel.
- iv) Basic Insurance Office. It is responsible for general and automobile insurance operations.
- v) Savings and Money Orders Office. It is responsible for the collection of savings and money orders intended for the mobilization of personal savings.
- vi) Credit Office. It directs and executes the credit operations of the institution. The two offices of the deputy managers and the 4 departments that make them up are responsible for operations corresponding to the following lines of credit:
 - Personal loans to public service personnel
 - Personal loans to the personnel of private enterprises that are members of the system
 - Personal loans to professional personnel, craftsmen and owners of workshops, etc.

- Personal loans against savings
- Housing loans
- Consumption loans
- Loans for social infrastructure
- Loans for working capital of state and mixed enterprises
- Loans to private enterprises against subscription of debentures
- Investment loans to state enterprises

This Department will be responsible for the administration of operations relating to La Matanza subprogram which would be financed by the Bank out of the proposed loan.

- vii) Promotion Office. It is in charge of the promotion of the services of the institution and activities connected with institutional communication. It takes part in setting the policy for the production of insurances and in mobilizing the bank portfolio. It intervenes in institutional publicity and in the orientation of programs in the teaching of thrift in different areas of the community.
- viii) Administration Office. It is responsible for contracting and supplying materials, selling of goods, provision of general services, provision and maintenance of movable and immovable property and the selection, recruitment and development of the personnel of the institution.
- ix) General Accounting Office. It is responsible for the accounting management of the operations, the coordination of the records of the different units.
- x) Operational Coordination Office. It directs and coordinates the activities of the branches of the institution, the movement of funds and securities and the corresponding collections and payments of the central administration.
- xi) Legal Affairs Office. It directs and coordinates the legal procedures and matters arising out of the services and activities of the institution.
- xii) Organization and Systems Office. It provides advisory services on the rationalization of administrative structures, methods and procedures as well as on the analysis and implementation of systems for treating information and its processing by data processing equipment.

4. Branches and Agencies

5.45 In addition to the head office, located in the Capital of the Republic, the institution has a network of branches and agencies distributed throughout the country. Their number and distribution by category is summarized in the following table:

Head Office	1
Branches	26
Own Agencies	11
Offices	4
Post Office	
Agencies	1,625
Mail Station	
Agencies	567
School Agencies	18,439
Special Agencies	279
Total	<u>20,952</u>

5. Personnel

5.46 As of September 30, 1976 the CNAS had 6396 officers and employees, of which 4499 were working in the Central Administration and 1897 in the branches. These personnel were classified as follows:

<u>Central Administration</u>		<u>Branches</u>	
General Manager	1	Manager	36
Deputy General Manager	3	Deputy Manager	8
Departmental Manager	13	Accountant	37
Deputy Departmental Manager	22	Chief of Office	5
Head of Department	71	Deputy Accountant	10
Deputy Head of Department	62	Treasurer	40
Head of Division	166	Deputy Treasurer	7
Deputy Head of Division	299	Chief of Service	21
Head of Section	382	Chief of Section	206
Assistants (2)	2.766	Assistants (2)	1.328
Head of foremen	47	Chief of foremen	-
Supervisory personnel	294	Supervisory personnel	29
General Overseer	15	General Overseer	9
Service Personnel	358	Service Personnel	161
	<u>4.499</u>		<u>1.897</u>
	=====		=====

6. Accounting System

5.47 The accounting system of the institution is in line with the standards established by the official agencies for the control of bank and insurance activities, the Central Bank of the Argentine Republic, and the Superintendency of Insurance of the Nation. The Central Accounting Office consists of two independent subsystems: General and Bank Accounting and Insurance Accounting.

5.48 The information is processed with the assistance of the processing department and computer center.

5.49 The computer center has the following equipment:

- (1) conventional IBM
- (1) IBM/370-145
- (1) Burroughs 6721
- (1) Burroughs 1726

7. Budget

5.50 The budget is prepared in accordance with the standards issued by the Dirección Nacional de Programación e Investigación del Sector Presupuesto Nacional and contains the annual estimates of expenditures in investments, as well as an estimate of resources prepared by each of the departments responsible for banking and insurance services.

8. Internal Control

5.51 The management and operation of the various units of the institution is directly supervised by the Auditing and Management Control Departments, both of which come under the authority of the Planning and Control Office.

9. Internal Audit

5.52 The financial statements of the banking area are audited by the Bank Inspecting Unit of the Central Bank of the Argentine Republic in accordance with the laws in force in the country in this regard.

5.53 Furthermore, the execution of the budgets and the rendering of accounts of the expenditures that affect it are subject to the supervision of the Ministry of Economic Affairs through the Court of Accounts of the Nation and the General Accounting Office of the Nation.

10. General Balance Sheets

5.54 The CNAS maintains separate accounts for the Banking Services and for the Insurance Services. This analysis deals solely with the banking sector, which is that which will be responsible for the project that is the subject of this report. However, by way of illustration, the General Balance sheets, at June 30, 1976 for the banking sector, the insurance sector, and a consolidated balance sheet appear in Annex 18. As may be seen, the banking sector accounts for 65% of the total of CNAS if measured by total assets.

- 5.55 Annex 18 contains the General Balance sheets of the banking services of the CNAS at June 30, 1974, 1975 and 1976 and at December 31, 1976.

The balance sheets are presented in millions of Argentine pesos. Comparisons of absolute values between one year and another have very little meaning because of the economic situation in Argentina in the last 6 years. Therefore, the financial statements have not been converted into dollars.

11. Investments

- 5.56 Among CNAS assets mention must be made of the item "Investments", which consists of loans and securities that at the dates analyzed, constituted 88%, 86%, 73% and 86% of the total Assets of CNAS. Annex 19 contains a breakdown of the investments.

12. Loans

- 5.57 In the investments, the principal item is loans, which represents more than half of the assets of CNAS. The loans are classified into personal credits and community credits and special credits (official sector); the share of the first has increased from 45% of the total in 1974 to 62% at the end of 1976.
- 5.58 All the loans are granted without a maintenance of value clause, although the rate of interest is periodically adjusted according to the instructions of the Central Bank of the Argentine Republic (B.C.R.A.).
- 5.59 The official lines of credit are channeled through self-governing, national and provincial agencies; government or mixed enterprises and municipalities for the construction of hospitals, sanitation equipment, education, electric power, gas urban pavements, water supply works, storm drains and sewers, sanitation, etc.
- 5.60 Individual loans are granted to public employees, employees of private enterprises that are members of the system and employees of CNAS; they are granted against salary deductions and the amortization quota cannot exceed 20% of the salary. In other lines of individual credits a co-debtor is required.
- 5.61 Mortgage loans are guaranteed by the property and, in the case of provincial and municipal institutions, the guarantee of the loan granted is coparticipation in the corresponding taxes and royalties. Other official loans are made with the guarantee of the National Treasury.
- 5.62 Because of the nature of its loans, as may be seen in the foregoing paragraph, the likelihood of bad debts is very small, and extensions are granted infrequently. The portfolio of the delinquent debtors, which is very small, is primarily due to administrative delays in executing the guarantee or in transferring the funds from the employing agencies to the CNAS. At December 31, 1976 the delinquent portfolio was less than 1% of total loans.

13. Securities

- 5.63 Securities are the second item of importance in the assets and represented 35% of them at December 1976. More than 99% of them consists of shares that are quoted on the stock exchange and their value at December 31, 1976 was the equivalent of US\$80 million. In no case is the CNAS the majority shareholder of the enterprises whose shares it owns (more than 200 enterprises) nor does it hold more than 19% of the shares of any enterprise (in most cases it holds less than 10%). The CNAS plans to sell the shares gradually and to provide OSN with the proceeds of the sale so that it may carry out the project that is the subject of this report. The loan is considered financially feasible since it would be in the amount of US\$34 million and the shares were valued at December 1, 1976 at US\$80 million. Furthermore, as will be seen below, the CNAS does not need funds for its normal operations. The sale of the shares is governed by a sales regime which was published this year.

14. Liabilities to the Central Bank of the Argentine Republic

- 5.64 Up to August 31, 1973, the deposits mobilized by the CNAS were used as its principal source for its financial and economic development.
- 5.65 Beginning on September 1, 1973, when Law No. 20520 on the nationalization of bank deposits entered into force, the resources for loan operations and investments of the CNAS are derived from the rediscount of its portfolio or advances on current account granted it by the Central Bank of the Argentine Republic. Accordingly, the different kinds of deposits that formerly generated the funds for the operational management of the CNAS are replaced by different rediscount lines established in accordance with the credit policy of the State. The CNAS acts, as regards deposits, as the agent of the BCRA.
- 5.66 This financial operation procedure will soon be replaced by Law No. 21496/77, which authorizes the decentralization of bank deposits and a return to the former system.
- 5.67 This means that liabilities to the BCRA for rediscounts of portfolios or advances on current account will be replaced by deposits mobilized by the CNAS. At December 31, 1976, liabilities to the BCRA amounted to 31.511 million Argentine pesos, whereas deposits mobilized stood at \$42.644 million Argentine pesos (approximately US\$155 million).

15. Net worth

6.68 When the CNAS was established, it was not assigned any capital; instead its Charter provides that, after deduction of depreciation charges and reserves for bad debts, the annual liquid realized profits will be distributed as follows:

1. 20% of the profits will go to the General Revenue of the Nation;
2. Of the remaining 80%:
 - a) 70% will be used to increase the legal reserve until it amounts to 10% of deposits and savings;
 - b) 30% will be used for social welfare and/or benefit works that foster education or promote savings.

5.69 The changes in the legal reserve have been insignificant since CNAS is not a profit-making institution. The increase in the other reserves is due primarily to the revaluation of assets.

16. Profit and Losses

5.70 The income of CNAS (See Annex 20) consists for the most part of interest on the loans it grants (84% of the income during the second half of 1976), income from securities, commissions, and miscellaneous profits arising from the sale of securities, of real estate, and other goods. During the second half of 1976 total income amounted to approximately US\$20 million.

5.71 Expenditures consist of the interest CNAS must pay to the BCRA for the use of funds, in accordance with Law No. 20520 and which are shown under financial charges. Administrative expenses, which include personnel remunerations and expenses, operating expenses, stationery, etc. and miscellaneous expenses which include advertising and publicity expenses, rents, and bad debts.

5.72 In the fiscal years analyzed the results show a small profit which is distributed as indicated above in the section dealing with net worth. It is to be noted that, at December 31, 1976, the results show a loss of 302 million Argentine pesos, which was due to a failure to update interest rates. The situation was subsequently corrected and the balance sheet of CNAS at February 28, 1977 shows a profit of 531 million Argentine pesos. As already mentioned, the CNAS is a nonprofit making institution which is why the profits are so low.

17. Statements of Source and Application of Funds

5.73 In order to better understand the financial evolution of the CNAS, a statement of source and applications of funds for the last three years is presented below:

	Year Ending June 30					
	1974		1975		1976	
	<u>\$Arg.</u>	<u>%</u>	<u>\$Arg.</u>	<u>%</u>	<u>\$Arg.</u>	<u>%</u>
<u>Source</u>						
Profit (loss) Fiscal Year	84	2	68	1	101	-
Depreciation Fixed Assets	27	-	65	1	619	4
Allowance Bad Debts	4	-	42	-	159	1
Total Internal Generation	<u>115</u>	<u>2</u>	<u>175</u>	<u>2</u>	<u>879</u>	<u>5</u>
Increased Liabilities						
B.C.R.A.	1,401	25	2,065	27	6,131	38
Recovery Personal and Official Loans	2,618	47	4,744	62	5,486	34
Increase (Decrease) Other Liabilities	(76)	(1)	193	3	1,595	10
Increase Special Reserves and Allowances	360	7	353	5	1,344	8
Sale Real Estate	417	8	-	-	-	-
Increase Legal Reserves and Revaluation of Accounts	<u>670</u>	<u>12</u>	<u>102</u>	<u>1</u>	<u>810</u>	<u>5</u>
	<u>5,505</u>	<u>100</u>	<u>7,632</u>	<u>100</u>	<u>16,245</u>	<u>100</u>
<u>Application</u>						
Distribution Profits	-	-	84	1	68	-
New Personal and Officials Loans	4,630	84	7,048	92	12,148	75
Sale Fixed Assets	59	1	165	2	1,372	8
Investment Securities	-	-	83	1	467	3
Other Items	566	10	119	2	605	4
Increase Quick Assets	<u>250</u>	<u>5</u>	<u>133</u>	<u>2</u>	<u>1,585</u>	<u>10</u>
	<u>5,505</u>	<u>100</u>	<u>7,632</u>	<u>100</u>	<u>16,245</u>	<u>100</u>

5.74 During the years analyzed, the principal sources of funds in order of importance were: recovery of personal and officials loans, and increase in liabilities to the BCRA. This last-mentioned source of funds will be replaced by an increase in deposits, when their nationalization is completed. The total of the sources of funds in the year ending June 30, 1976 was 16,245 million Argentine pesos (aproximately US\$207 million).

5.75 The application of funds clearly reflects one of the principal objectives of the CNAS, since by far the most important application has been the grant of personal and official loans. During the year ending June 30, 1976 loans in the amount of \$12.148 million Argentine pesos or about US\$155 million were granted.

E. Empresa Obras Sanitarias de la Nación (OSN)

- 5.76 The OSN is a self-governing agency with its own assets, legal personality and sufficient legal capacity to act as executing agency of the program and to comply with the directives given it by the borrower.
- 5.77 The operations and activities of the OSN are governed by its Charter which was approved by Decrees Nos. 2678/72 and 3576/73 as amended by Law No. 20324 of April 27, 1973, which converted OSN into a state enterprise. OSN is under the authority of the Department of Transportation and Public Works of the Ministry of Economic Affairs.
- 5.78 Argentine State enterprises including the OSN are also governed by public law as regards their relations with other government agencies or the public service for which they are responsible, and by private law in all matters relating to specific activities.

1. Administration

- 5.79 The Chief Administrative Officer of the OSN is a general administrator who directs and conducts the activities of the institution through 6 Offices: engineering, operation, large water systems, logistics, financial economy and planning and control (see Annex 21).
- 5.80 The Engineering Office directs the studies and projects relating to the construction of civil works and facilities for water supply and sewerage systems, gives advise on the formulation of programs for expanding existing systems or creating new systems, supervises the execution of the works by contract or on force account, gives advice on the preparation of the annual budgets for the execution of sanitation works. It comprises the Project Studies, Service to New Localities and Works Departments.
- 5.81 The Operations Office is responsible for the operation and maintenance of the services, sources intake and discharge works, treatment plants and distribution networks; it makes rate studies, coordinates the activity of the laboratories on the study and solution of problems relating to water quality, treatment of sewage, etc. It comprises the Technical, Industrial Facilities Laboratory and Commercial Departments.
- 5.82 The Major Water Supply Systems Office is in charge of operations involving studies, projects, investigations for the development and construction of works making up large water supply systems. It consists of the Technical and the Promotion and Coordination Departments.
- 5.83 The Logistics Department is in charge of logistic operations, matters relating to personnel as well as the purchase and supply of materials, elements, equipment and services. It consists of the Industrial Relations and Supply Departments and the Chemical Products Factory comes under its authority.

- 5.84 The Financial and Economic Office directs operations relating to economic and financial activity of the general administration. It consists of the Finance and the Accounting Department.
- 5.85 The Planning and Control Office is responsible for the long, medium and short term planning of the activities of the OSN and directs the auditing and supervision of the management of the different areas that make up the General Administration. It consists of the Programming and Management Control Departments.
- 5.86 Because of the nature of their functions, the General Secretariat, Organization and Methods and Legal Affairs Departments, come under the direct authority of the General Administrator.
- 5.87 In view of their geographical dispersion, OSN operations are carried out on a decentralized basis through 9 Regional Offices that report directly to the Office of the General Administrator and which are in charge of the operations of the areas within their jurisdiction. These regions are Federal Capital and Greater Buenos Aires, Central Region, Cuyo Region, Comahue Region, Litoral Region, Northwest Region, Northeast Region, Patagonia Region and the Patagonia Region.
- 5.88 The Regional Offices are subdivided into Divisions of which there are 25 in the country. The Divisions are in turn divided into Districts of which there are 81. In addition, there are the Services which are the water plants proper.
- 5.89 The Urban Subprogram, which is the subject of this report, is located in the District of La Matanza, Greater Buenos Aires Division, Federal Capital and Greater Buenos Aires Regional Office. The Organizational Chart in Annex 21 shows the administrative structure of the institution.
- 5.90 At the regional, divisional and district areas, the organization is similar and is basically made up of three areas: engineering, administration and accounts and commercial.

2. Personnel Policy

- 5.91 The General Administrator of the OSN is entitled to appoint, assign functions, remove, suspend or dismiss the personnel of the institution holding posts in the organizational structure approved by the Executive Branch. With the exception of the senior management of the enterprise, the personnel of the OSN cannot be removed from their posts by administrative means. There is an internal promotion policy, which is being reviewed with a view to internal reorganization for the purposes of greater administrative and technical efficiency. The permanent staff of OSN at the present time, which was authorized by Decree No. 6548 of 1969 is 18138 employees who are classified, on the one hand, on a functional basis and, on the other, into 24 classes.

5.92 A summary table of the permanent personnel of the OSN is given below:

	<u>Employees</u>	<u>%</u>
Technical	3,774	21
Administrative	3,248	18
Manual workers	11,116	61
	<u>18,138</u>	<u>100</u>
	=====	=====

5.93 At present a project for the permanent staff of the institution which would increase the number of employees by 36% and emphasizes a better qualified personnel is under study.

3. Accounting System

5.94 The general accounting system of the enterprise is based on double entry accounting and budgeting. In the double entry system the registration of operations is divided into the centralized section, district section and industry section and other services. The budgetary system comprises current expenditures and capital expenditures and is prepared independently for each operational unit.

5.95 After the overall levels of resources and expenditures of this budget have been approved by the Ministry of Economic Affairs, the OSN formulates the action plan and budget and submits it for approval to the Executive Branch.

In order to supervise the execution of the budget, a system which includes both a centralized and a decentralized process has been set up, bearing in mind, principally, fulfillment of legal provisions; control of the items assigned and the supply of useful information for decision taking. Furthermore, the OSN has set up a system for preparing and updating cash flow projections each month, with a view to preventing any inequilibria, improving the use made of available resources, and enabling proper use to be made of credit resources. The projections are compared with the actual figures, the deviations are analyzed and corrective measures are taken. In addition, the OSN has programmed a cost system as part of the accounting system. The cost system is divided into 8 subsystems of which 2 have already been implemented.

5.96 OSN recently acquired data processing equipment, which is already making an important contribution to the accounting area of the institution. Generally speaking, the accounting system is considered to be adequate. However, it is limited by a lack of personnel and it is hoped that this problem will be overcome if the proposed permanent personnel project, which provides for an increase in the number of employees in this area is approved.

4. Internal Control

5.97 The organizational structure provides for the following units with control functions:

1. Division of Supervision of Economic and Financial Management, the purpose of which, within the structure of the enterprise, is to direct activities aimed at verifying operations and activities of the services in the administrative, financial and accounting areas.
2. Auditing Division of the Planning and Control Office whose purpose is to direct activities relating to the fulfillment of the accounting, commercial and administrative provisions, standards, and procedures in force.
3. Division for the Supervision of the Logistics Office whose purpose is to direct activities aimed at supervising the coordination of supply to the Services and to ensure that it takes place.

5. External Audit

5.98 OSN is subject to the external supervision of the following institutions:

1. Sindicatura General de la Corporación de Empresas Nacionales, which performs its functions through three trustees who are responsible for the following areas: Management Control, Legality Control and Auditing of Accounts.
2. General Accounting Office of the Nation of the Department of State for Finance of the Ministry of Economic Affairs. This institution has been auditing the financial statements of OSN and the projects financed in part by IDB. It is recommended that it continue to audit the financial statements of the project which is the subject of this report.

6. Financial Statements

5.99 Comparisons of absolute values from year have very little meaning because of the financial situation of Argentina in recent years. Accordingly, the financial statements have not been converted into dollars.

5.100 The general balance sheets of OSN at December 31, 1974, 1975 and 1976 are included in Annex 24.

5.101 The principal item of the assets is that of fixed assets which consists primarily of the various water supply systems operated by OSN. According to the general balance sheet, fixed assets represent approximately 2/3 of total assets. However, the proportion is in actual fact much greater since fixed assets are entered on the books at the cost of acquisition which is extremely low, bearing in mind the severe inflation which Argentina has experienced. OSN is working on a program to

identify fixed assets with a view to revaluating them and ascertaining the correct depreciation in order to establish appropriate rates for it. OSN hopes to finish this program in the first half of 1978.

- 5.102 Accounts receivable for services and for other items represent most of the current assets. It was not possible to obtain an analysis of accounts receivable by age; however, an analysis of collection of services during the last two years is given below. It shows a substantial improvement in the last year. A small part of the collection represents invoicing from the previous year.

	Year Ending December 31			
	1975		1976	
	\$Arg	%	\$Arg.	%
Invoicing	3,260	100	12,730	100
Collection	1,837	56	9,574	75

- 5.103 "Accounts receivable-other" primarily consists of debtors for joint works and of the government subsidy for operating expenses.
- 5.104 Liabilities, as a share of the total of liabilities and net worth, represented 40% in 1974, 59% in 1975 and 33% in 1976. These percentages are in actual fact much lower, since as mentioned earlier fixed assets have not been revalued and when they are the net worth will consequently be much greater.
- 5.105 The following is a breakdown of the bank loans of the OSN, in millions of pesos:

	<u>1974</u>	<u>1975</u>	<u>1976</u>
<u>Short Term</u>			
AID			1
IDB	32	44	37
CNAS	41	37	34
National Development Bank	34	193	893
City Bank of Buenos Aires			99
	<u>107</u>	<u>274</u>	<u>1,064</u>
<u>Long Term</u>			
AID	16	23	22
IDB	176	351	274
CNAS	83	54	8
National Development Bank	852	3,263	3,084
	<u>1,127</u>	<u>3,691</u>	<u>3,388</u>
	=====	=====	=====

5.106 OSN's only dollar loans are with IDB and with AID for the financing of studies. The largest loan is with the National Development Bank and matures in 1984; repayment is by annual equal amortization payments.

7. Income Statement

5.107 The income statements of OSN for the years ending December 31, 1974, 1975 and 1976 are shown below:

	Year Ending December 31		
	1974	1975	1976
Income			
Product Operations of			
Service	860	3,260	12,730
Expenditures			
Personnel	755	2,471	10,382
Production	245	615	3,028
Administration and			
Commercial	72	201	1,165
Depreciation	5	10	18
Other	93	177	1,521
	<u>1,170</u>	<u>3,474</u>	<u>16,114</u>
Income from operations			
(loss)	(310)	(214)	(3,384)
Other Income			
Subsidy from National			
Government	453	958	9,039
NET INCOME	<u>143</u>	<u>744</u>	<u>5,655</u>
	=====	=====	
Adjustment Earlier Years			11
			<u>5,644</u>
			=====

5.108 The principal expenditures of OSN are the salaries, which represent about two-thirds of the total. Next in importance are the costs of production which represent approximately 20% of the total. However, these proportions are going to vary because once the assets have been revalued, depreciation, which in the statements has been calculated on the basis of the historical cost of the fixed assets, is going to rise substantially.

5.109 During the years analyzed, the income statement showed an operating loss. Rate income has increased somewhat from year to year but was no sufficient to offset the inflationary increase of the expenditure. In 1974 it covered 74% of the expenditures, 94% in 1975 and 79 in 1976. Based on the rate increases that are taking place, the enterprise is expected to show a profit in 1977.

5.110 OSN's losses have been covered by the National Government, which has subsidized the interprise both as regards current expenditures and capital expenditures.

8. Statement of Sources and Application of Funds

5.111 The following statements show the source of funds and the use OSN made of them in the years 1974, 1975 and 1976:

	Year Ending December 31					
	1974		1975		1976	
	<u>\$Arg.</u>	<u>%</u>	<u>\$Arg.</u>	<u>%</u>	<u>\$Arg.</u>	<u>%</u>
<u>Source of Funds</u>						
Subsidy from National Government	453	26	958	21	9,039	28
Increase Capital and Reserve	268	15	934	20	23,280	71
Increase Bank Debts	889	50	2,564	56		
Increase Other Noncurrent liabilities	165	9	118	3	352	1
	<u>1,775</u>	<u>100</u>	<u>4,574</u>	<u>100</u>	<u>32,671</u>	<u>100</u>

Application of Funds

Loss on Operations	310	17	214	5	3,384	10
Adjustment Loss Early Years	-	-	-	-	11	-
Increase Fixed Assets	1,273	72	3,957	86	23,755	73
Decrease Bank Debts	-	-	-	-	303	1
Increase Working Capital	192	11	403	9	5,218	16
	<u>1,775</u>	<u>100</u>	<u>4,574</u>	<u>100</u>	<u>32,671</u>	<u>100</u>

5.112 During 1976 most of the funds came from the Government in the form of a subsidy for current and capital expenditures; the last-mentioned is reflected in a capital increase: 73% of the funds were used for carrying out works; 16% for increase in working capital; and 10% for covering loss on operations. Total funds generated amounts to approximately US\$218 million. This means from the financial point of view that during the four-year period the government contribution of US\$50 million is feasible.

5.113 Use of funds in 1974 and 1975 was similar to that in 1976; most of them were used for increasing fixed assets. As regards source of funds, the Government contributed a large part, and recourse was had to bank loans to finance about half the funds. These were primarily ten-year National Development Bank loans.

9. The District of La Matanza

5.114 Within the OSN organization, La Matanza operates as a District that comes under the authority of the Greater Buenos Aires Division, Federal Capital and Greater Buenos Aires Office. Its purpose is to direct activities connected with the operation of the water supply and sewage disposal service in its area.

(i) Organization 1/

5.115 The District is divided into 3 areas:

- a) Commercial, which directs activities relating to the commercial management of operations, primarily census taking, cadastre, and valuation of rural real estate and collections.
- b) Administrative-Accounting, which is responsible for administrative activities, personnel, purchases, supplies and accounts
- c) Technical which operates through three units: External Facilities, the purpose of which is the maintenance of water supply and sewage-disposal facilities; Internal Facilities, which makes studies with a view to the approval of plans for internal facilities and inspects the execution of these facilities; Establishment and Electromechanical Facilities, it is responsible for the operation of maintenance of facilities for intake water treatment and the lifting and treatment of sewage.

(ii) Personnel

5.116 La Matanza has an authorized permanent staff of 81 employees, classified as follows:

	<u>Employees</u>	<u>%</u>
Technical Personnel	20	25
Administrative Personnel	19	23
Manual Workers	42	52
Total	<u>81</u>	<u>100</u>
	=====	=====

5.117 Approximately half the personnel are manual workers and the other half is divided equally into technical and administrative personnel. At present, a proposed permanent staff project, which would double the number of administrative personnel and almost quadruple that of the technical personnel and manual workers, is under study. The authorized personnel has been frozen for about 8 years, and this together with the expense of the service, would justify the proposed personnel increase.

1/ See Organization Chart in Annex 22.

(iii) Accounting System

- 5.118 The general accounting system of the District is by double entry and is maintained by OSN at the central level; in addition there is a budgetary accounting system.

(iv) Financial Statements

- 5.119 The general balance sheet at December 31, 1974 and 1975 is included in Annex 23.
- 5.120 Fixed assets represent 88% of total assets at the end of 1974 and 80% at the end of 1975. These assets are entered on the books at their original value so that when they are revalued they will represent a much larger share.
- 5.121 The situation as regards collections during the last 3 years is as follows; a small part of the collection represents invoicing from the previous year:

	1974		1975		1976	
	<u>\$Arg.</u>	<u>%</u>	<u>\$Arg.</u>	<u>%</u>	<u>\$Arg.</u>	<u>%</u>
Invoicing	6.1	100	22.9	100	117.5	100
Collection	6.5	107	15.5	68	105.8	90

- 5.122 In 1974 collections were larger than the amounts invoiced because of the recovery of old accounts. In 1975, only 68% of the amount invoiced was collected but in 1976 the situation improved and 90% was collected.
- 5.123 It goes without saying that more than 90% of the assets of the district have been financed by OSN in two ways: capital and accounts payable to the general administration.
- 5.124 The income statement for the last three years is presented below:

	1974		1975		1976	
	<u>\$Arg.</u>	<u>%</u>	<u>\$Arg.</u>	<u>%</u>	<u>\$Arg.</u>	<u>%</u>
<u>INCOME</u>						
Revenue from operation of service	6.1	90	22.9	57	117.5	52
<u>EXPENDITURES</u>						
Personal, materials and other	6.8	100	40.1	100	225.1	100
INCOME FROM OPERATIONS (LOSS)	(.7)		(17.2)		(107.6)	
	=====		=====		=====	

- 5.125 Revenue from billing rose by 275% in 1975, compared with 1974, and by 413% in 1976, compared with the previous year. However, expenditures increased even more rapidly so that, whereas in 1974 income covered 90% of expenditures, in 1975 it covered 57% and in 1976 only 52%.

VI. EXECUTION OF EARLIER LOANS

6.01 To finance projects for drinking water supplies in Argentina the Bank has granted the following loans:

(i) For rural sector programs: 114/TF-AR and 302/SF-AR.

(ii) For urban sector programs: 43/SF-AR, 86/TF-AR and 70/SF-AR.

Following is a summary of the salient aspects of the execution of these loans:

A. Loan 114/TF-AR

6.02 This loan to the Argentine Government was approved on August 12, 1965, and the loan contract was signed on August 26 of that year. The purpose of the program financed was to promote, plan, draw up blue prints for, and organize the Servicio Nacional de Agua Potable (SNAP), to organize and make adjustments in the provincial bodies (SPARS) and the beneficiary communities, which would be executing the works, and to build, improve and expand potable water systems for towns of 100 to 3,000 inhabitants. The total cost of the program was estimated at the equivalent of US\$10.0 million, of which the loan financed up to the equivalent of US\$5.0 million from the Social Progress Trust Fund.

1. Execution of the program

6.03 The launching of the program was delayed by the need to conclude in advance the legal agreements between the Government and the provinces for execution of the program and between the provinces and the communities for the specific projects. The program thus began with the establishment and coordination of the national-, provincial- and community-level organizations charged with its execution. On the national level the SNAP became responsible for the planning, regulation and general administration of the allotted funds and for general supervision and guidance. On the provisional level, each SPAR would draw up the projects, execute the works, administer the funds allotted, and supervise the operation and maintenance of the finished works. The beneficiary communities would contribute to the financing and participate in the execution of the works, which they would then administer, operate and maintain. Each chosen community had to enter into agreements with its SPAR on the conditions for the execution and administration of its project. The SNAP, on the other hand, concluded general agreements with each province covering groups of communities participating in the program.

6.04 The last of the loan funds were disbursed in December 1970 and the works they financed were finished in the second half of 1972. A total of 214 systems were built under the program and are today benefiting a population of 256,000 persons. The designs provided a capacity to serve a future population of 449,000 persons.

6.05 The constructed works were found to meet adequately the requirements and needs of the beneficiaries, and this assessment is borne out by user response in the form of prompt water rate payments and the growing number of requests for new connections to systems in operation. The rates meet the Bank's requirements. A total of 46,779 house connections, 7,812 of them metered, were installed under the program. The installation of water use regulators and meters was a step forward, for only in exceptional cases had meters ever been used in Argentine water supply system.

6.06 The systems were built in the following provinces and numbers:

Buenos Aires	6
Catamarca	14
Chaco	4
Chubut	6
Córdoba	17
Corrientes	13
Entre Ríos	8
Formosa	6
Jujuy	12
La Pampa	13
La Rioja	9
Mendoza	19
Misiones	9
Neuquén	6
Río Negro	4
Salta	12
San Juan	16
San Luis	7
Santa Fé	17
Santiago del Estero	6
Tucumán	10
	<hr/>
	214
	====

6.07 The program anticipated from the outset the need to train members of the communities to assume responsibility for the operation and maintenance of the systems as they became operational. To this end the SNAP and the SPARs have conducted periodic courses on the professional level and particularly on the technician level on the subjects of community promotion and the operation and maintenance of the systems. By the end of the program 16 courses had been held in which 105 persons had been trained on the professional and 380 on the subprofessional levels.

6.08 Execution of the program provided a framework for organizing and training the personnel of the national and provincial agencies that participated in its execution. The program made it possible to use plastic pipes in the distribution networks, and consumption regulators and meters,

which had previously been used only exceptionally. The use of high capacity filters, compact treatment plants, and plants that included fluoridation processes is proof that the plan drew on the latest engineering techniques suitable for the local situations.

- 6.09 Additional studies were carried out under the program for more than 80 communities as a basis for the execution of a second stage. To maintain the continuity of the program, the Bank approved loan 302/SF-AR.

2. Cost and financing

- 6.10 The works constructed cost a total equivalent to US\$15.8 million, which breaks down into the following general cost categories:

(In thousands of US\$ or equivalent)

<u>Category</u>	<u>Programmed</u>	<u>Actual</u>
Engineering and Administration	310.0	4,597.5
Direct costs	9,640.0	11,073.2
Financial costs	-	85.0
Technical assistance	50.0	17.6
	<u>10,000.0</u>	<u>15,773.3</u>
	<u>=====</u>	<u>=====</u>

- 6.11 The direct cost per benefiting inhabitant was, for the works, US\$43.3, and for the program, US\$61.6.
- 6.12 The increase in actual Engineering and Administrative costs was due to an under-estimation of these items in preparing the budget for the program, especially since the administrative and technical organization of the SNAP and the SPARs had to be carried out as part of the program, and considerable supervision and technical and logistical support would be needed for execution of the works.
- 6.13 The increase in building costs was caused mainly by the rise in domestic prices during the period of execution. The cost overrun was financed by additional local contributions.
- 6.14 The actual costs of the program were financed as follows:

	Equiv. to US\$ thousands		Percentages	
	Programmed	Actual	Programmed	Actual
IDB	5,000	5,000.0	50	32
Government/SNAP	2,000	3,627.2	20	23
Provinces/SPARs	1,000	4,898.7	10	31
Communities	2,000	2,247.1	20	14
	<u>10,000</u>	<u>15,773.0</u>	<u>100</u>	<u>100</u>
	=====	=====	===	===

3. Technical assistance

6.15 The funds assigned for technical assistance were used to contract for three consultancies:

- (i) Estudio de Consultores Perel. This firm carried out the study of the "Administrative-Accounting System of the SNAP and its Relationship with the SPARs". The report presented was approved by the SNAP and rated satisfactory.
- (ii) Accountant Miguel A. Corleto. Administration of community agencies. The report was based on the experience of 20 communities studied. The recommendations were approved by the SNAP.
- (iii) Horacio D. Maña. Organization of project tasks. The report presented was not satisfactory. The SNAP judged that the consultant had failed to grasp the working of the National Plan and, therefore, his suggestions could not be held as valid as those of the other two consultants.

B. Loan 302/SF-AR

6.16 This loan to the Argentine Government was approved on July 28, 1971, and the loan contract was signed on October 6 of that year. The project financed consisted in the construction of about 250 potable water supply systems for inland rural communities. It also called for the study and development of water sources and provided technical assistance (US\$150,000) for (i) an administrative reorganization, (ii) a reorganization of the accounting system, (iii) a study of the water rates, (iv) the formulation of design standards, (v) a study of plastic pipes and accessories, (vi) special consultancies for the study of arsenic removal from the raw water and of consumption control systems, and (vii) a plan for the training of operating personnel, administrators and supervisors, and for the design and contracting of works. The total cost of the program was estimated at the equivalent of US\$25,000,000, of which the loan financed US\$12,000,000. Of the loan resources, US\$5,400,000 would be disbursed in dollars and US\$6,600,000 in Argentine pesos. The project was to be executed by the Servicio Nacional de Agua Potable y Saneamiento Rural (SNAP) in partnership with the Provincial Rural Water

Supply Services (the Servicios Provinciales de Agua Potable Rural, or SPARs). The execution period was set at 3-1/2 years and extended for two years.

1. Execution of the program

- 6.17 During the period of execution of the program the economy of the country was beset by intensifying inflation, fiscal difficulties and several administrative changes. These factors notwithstanding, the program was executed within the extended period. In the process of review and approval of the designs, projects on the original list were deleted and replaced by others of relatively larger scale. The result of these changes was that fewer works were executed but a considerably larger population was served; 194 systems were built for a beneficiary population of 327,565 - 26 percent more than the programmed figure. The works under the program are 99 percent completed. Only three works are in the final stages of construction. The program has enough resources available to finance these works, which should be finished in the course of next July and August. In the new systems 59,000 house connections have been installed, 47,420 of them with meters.
- 6.18 160 of the executed works were carried out under contract and 35 on force account. The contracted projects represent more than 90 percent of the actual investments. Works on force account were executed in the provinces of Catamarca, Chaco, La Rioja, Misiones, San Juan and Santiago del Estero, where invitations to bid did not stir the interest of private construction firms. Only in the provinces of Catamarca and Chaco did all the works had to be constructed on force account. The cost of the works executed on force account proved, on the whole, acceptable and comparable with those awarded on a competitive basis.
- 6.19 Both the works entrusted to private builders and those constructed on force account were executed in accordance with the authorized plans and specifications. The quality of the works is rated good on the whole, and in many cases superior to that of the works carried out in the first stage (loan 114/TF-AR).
- 6.20 The finished works are turned over to the community agencies for operation, maintenance and administration. To this end the SPAR technicians train local personnel in the operation and administrative management of the services. Control or supervision is exercised by an Operation and Maintenance Officer of the SPARs, who periodically tours the works and fills out monthly control forms. These forms convey adequately the current number of connections, their classifications (metered, with regulator, with public tap, etc.), the state of the structures and installations, the treatment given and the efficiency with which it is carried out.

6.21 The projects were carried out in the following numbers and provinces:

Buenos Aires	25
Catamarca	5
Chaco	5
Chubut	5
Córdoba	21
Corrientes	13
Entre Ríos	14
Formosa	7
Jujuy	1
La Pampa	13
La Rioja	14
Mendoza	6
Misiones	11
Río Negro	8
Salta	1
San Juan	7
San Luis	3
Santa Fé	23
Santiago del Estero	3
Tucumán	10
	<hr/>
	195
	<hr/>

2. Cost and financing

6.22 Execution of the project actually cost the equivalent of US\$30,906,000, which is 19 percent above the original estimate. These costs break down as follows:

(In US\$ thousands or equivalent)

<u>Category</u>	<u>Programmed</u>	<u>Actual</u>
Engineering and Administration	7,130	6,059.3
Construction	14,100	23,845.6
Financial costs	740	801.1
Associated costs	200	200.0
Contingencies	2,830	-
	<hr/>	<hr/>
Total	25,000	30,906.0
	<hr/>	<hr/>

6.23 The cost overrun was caused almost entirely by the rise in prices during the period of execution of the works and was covered with additional local contributions. The cost of the program was financed in the following manner:

	Equiv. to US\$ thousands		Percentages	
	Programed	Actual	Programmed	Actual
IDB	12,000	12,000	48	39
Government/SNAP	5,070	6,441	20	21
Provinces/SPARs	5,130	6,797	21	22
Communities	2,800	5,668	11	18
Total	<u>25,000</u>	<u>30,906</u>	<u>100</u>	<u>100</u>

6.24 The beneficiary communities made their assigned contributions in a satisfactory manner and have accepted the application of rates to cover the operating and maintenance costs and their proportional share in the service on the loan. On several occasions, delays by the SNAP and the SPARs in effecting budgetary contributions due from them caused shortages of cash availabilities to meet payments falling due for works in progress under the program and helped build up the lag that necessitated the extension of the period for execution of the project.

3. Water rates

6.25 The rate clause adopted for the program establishes that the rates must be such as to cover at least the administrative, operating and maintenance costs and the service on the loan. In the last 3 years, only in 1974 was this clause not fully complied with, with costs and debt service exceeding billings by 1 percent. Thereafter the clause was met and there was a surplus over billings of 20 percent in 1975 and of 5 percent in 1976.

6.26 The following table shows the billings, operating costs and debt service during 1974, 1975 and 1976 for the rural potable water supply systems financed with loans 114/TF-AR and 302/SF-AR.

(In millions of Argentine pesos)

	1974		1975		1976	
	Amount	%	Amount	%	Amount	%
Billing <u>1/</u>	8.7	100	23.9	100	98.9	100
Administrative, Operating and Maintenance Costs <u>1/</u>	5.7	65	15.1	63	61.5	62
Interest on IDB loans	1.7	20	2.3	10	20.6	21
Amortization of IDB loans	1.4	16	1.7	7	12.2	12
	8.8	101	19.1	80	94.3	95
Surplus (Deficit)	(0.1)	(1)	4.8	20	4.6	5
	===	===	===	==	===	==

6.27 The administrative, operating and maintenance costs have averaged 63 percent of the billings. Debt service accounted for 36 percent of the billings in 1974, 17 percent in 1975, and 33 percent in 1976.

6.28 The following table summarizes the receipts on billings, which are viewed as satisfactory, with 95 percent of the billings collected in 1976 and 87 percent in 1975, the worst year. 1/

(In millions of Argentine pesos)

	1974		1975		1976	
	Amount	%	Amount	%	Amount	%
Billed	8.7	100	23.9	100	98.9	100
Collected	7.8	90	20.7	87	93.9	95

4. Technical cooperation

6.29 To provide the technical cooperation financed with the resources of the Plan of Operations included in the loan, the following consultants were hired:

i) On the administrative, accounting and financial reorganization:
Henry Martin & Co.

ii) On the rate system: Drysdale, Reig y Vázquez.

iii) On the standards and specifications for plastic pipes and accessories: Dr. Pedro Héctor Canova and Eng. Adolfo Brunengar.

1/ Data missing for some provinces.

iv) On standards for designs, materials and uniformity of installations and equipment for delivery to the SNAP: Engs. Hugo C. Albertelli, Jorge Linares, Julio Santamaría and Hidrosud S.A.

v) Arsenic removal: Héctor Julio Monti.

6.30 In fulfillment of their respective service contracts the contracted consulting firms prepared and presented to the SNAP the following draft manuals, standards and procedures:

6.31 Henry Martín & Co.

(a) Administrative reorganization.

- Organizational manual (job descriptions, etc.)
- Manual of standards and procedures for the Registry of incoming and outgoing items.
- A study of sources and projects: biddings and contracts; purchases and contracts for goods and services.
- Manual of rules and procedures on expenditures.
- Manual on internal auditing.
- Manual on rules and procedures for: service travel and per diem for staff; the purchase of air fares; petty cash; the general fund; billing; payment of salaries and wages; payment of certificates; cash receipts.
- Procedure for IDB disbursements; Government contributions; relations with the SPARs; descriptions of supervisory and junior personnel.
- relations with the IDB and additional agreements.

(b) Accounting-financial reorganization

- An accounting manual.
- A manual of budgetary accounting procedures.
- An evaluation and recommendations in the accounting-financial field; administrative-accounting systems and procedures and a feasibility study of mechanization.
- Basis for invitation to bid for a data-processing installation.

6.32 The manuals prepared by Henry Martín & Co. are, on the whole, acceptable, and are in use by the SNAP, except for the following, which could not be because of lack of personnel or of the minicomputer equipment.

(a) For lack of personnel

- Studies of sources and projects (Item 2). In the regional offices.
- Payment of certificates (Item 11). In the regional office.
- Internal auditing (Item 14). In the main office.
- SNAP-SPAR relations (Item 17). In the regional offices.

(b) For lack of minicomputer equipment

- Billing (Item 9)
- Payment of salaries and wages (Item 10). Now being done in the Ministry of Economic Affairs.

6.33 In the part on accounting-financial reorganization entrusted to the same consulting firm, the following manuals remain to be implemented:

- The SNAP accounting manual
- The manual on budgetary accounting procedures.

The SNAP program of work calls for completion of all unfinished work entrusted to Henry Martin & Co. during 1977.

6.34 Drysdale, Reig y Vázquez Ger

(a) Administrative procedures

- Standard No. 1 - Updating of permanent register of users.
- Standard No. 2 - Acquisition of Goods and Services.
- Standard No. 3 - Outlays of Funds and Securities.
- Standard No. 4 - Measuring Consumption and Billing.
- Standard No. 5 - Rate Collection.
- Handbook for supervision of SNAP dealings with rural communities.

(b) Accounting System

- A system of accounts for Community Agencies
- Central Accounting (Standard No. 6)

- 6.35 The administrative procedures and the system of accounts devised by Drysdale, Reig y Vázquez cover in a generally acceptable way all the aspects of the operations of the Community Cooperatives and Agencies but were difficult to implement as a whole chiefly because they had been designed on the basis of technical standards that were rather advanced relative to the assimilating capacity and resources of the community agencies. These procedures have not yet been put into practice.
- 6.36 The SNAP proposes to hire the same consulting firm (Drysdale, Reig y Vázquez Ger) or some other qualified professional to review the administrative procedures and system of accounts of the community agencies and cooperatives and to make a few adaptive and simplifying adjustments in them before proceeding to their implementation. All this should be done within a relatively short time, and the cost should be borne by the SNAP.
- 6.37 Dr. P. H. Canova and Eng. A. Brunengar. Manuals on standards and specifications, building procedures and plastic pipes and accessories. These manuals were written for use at two different levels: one for professionals and another for the technicians. Both manuals have been approved by the SNAP and are in use.
- 6.38 H. C. Albertelly, J. Linares, J. Santamaría and Hidrosud S.A. They systematized the standards on designs, materials, installations and equipment for the National Rural Potable Water Supply Plan. These standards have been approved by the SNAP and applied under the program.
- 6.39 J. Monti. Report on removal of arsenic from waters intended for human consumption. The SNAP and the IDB were particularly interested in this work chiefly for the importance of its application under potable water programs in areas where the water sources are high in arsenic. The work done adhered to the approved methodology. The work of gathering background material on the national and international levels yielded a reasonable corpus of bibliographical references, which were incorporated into the final report. Similarly, laboratory tests yielded basic parameters for the design of a pilot treatment plant using iron and aluminum salts.
- 6.40 In their performance of the technical assistance the consultants adhered, in general, to the terms of their contracts and satisfactorily accomplished the purposes stated in the original plan of operations.
- 6.41 The training program drew 421 participants, who were on the following occupational levels and attended the following courses:

(i) Professionals	114
(i) Professionals	<u>114</u>
Water source studies	51
Water treatment plant designs	26
General sanitary engineering	37
(ii) Technicians:	<u>307</u>
Supervision of potable water supply systems	140
System operators	<u>167</u>
Total	421
	===

6.42 The effectiveness of the courses is evidenced by the efficient operation of the systems released for service.

C. Loans 43/SF-AR and 86/TF-AR

6.43 These loans, granted to the Administración General de Obras Sanitarias de la Nación, were approved on July 30, 1964. The respective contracts were signed on October 7, 1964. The purpose of these loans was to improve the supply of potable water in the localities of Avellaneda and Lanús through the construction of three main works: (i) the water tunnel from Avellaneda to Lanús (ii) the waterlift station at Lanús, and (iii) the Avellaneda distribution network.

1. Execution of the program

6.44 The project works were entirely finished in February 1972, the last disbursement from the two loans having been made in December 1971. The project took 7 years and 4 months to execute, which was 4 years longer than originally scheduled. The total cost of the project, originally estimated at US\$10,500,000, came in the end to US\$17,739,000. The cost overrun was covered by local contributions over those agreed to in the contract.

6.45 The served-population targets of the project were achieved, with water supplies being built where none had existed before for 180,000 people and the supply being improved for 620,000 people.

6.46 The application of the water rate agreed on for the project area is discussed in paragraph 6.53, below.

D. Loan 70/SF-AR

6.47 On December 9, 1965 the Bank approved a loan of US\$18,500,000 to cooperate in the financing of a project to improve and extend the potable water supply services in the cities of Buenos Aires, San Miguel de Tucumán, San Salvador de Jujuy, Mendoza and Córdoba. The loan contract was signed on June 10, 1966. The project comprised the following works:

- The construction of a treatment plant at Bernal to supply the Lomas de Zamora, Almirante Brown, Guilmes, Avellaneda, Lanús and Florencio Varela in the Buenos Aires conurbation.
- In Tucumán, the construction of water intake works, a treatment plant and two aqueducts.
- In Jujuy, the construction of water intake works a treatment plant, and their respective supply systems.
- In Córdoba, the construction of aqueducts.
- In Mendoza, the building of intake works, a treatment plant and an aqueduct.

1. Execution of the Program

6.48 The disbursement period was 3 years longer than had initially been provided. The loan was finally disbursed in full on June 30, 1974, with some works financed entirely by the borrower still in execution. On December 31, 1976 the following works were still under construction:

i. Buenos Aires conurbation:

- a. The pumping station at the Bernal treatment plant, of which the structures were 83 percent advanced and the electromechanical installations 62 percent completed.
- b. The Bernal-Lanús water tunnel, which was 94.2 percent completed.

ii. Tucumán: The El Cadillal Purification Plant. The main works are complete and already on line with a daily production of 40,000 m³/day. The access works, wire fence enclosure, lighting supervisor housing and maintenance shops are nearing completion.

6.49 The program as a whole is 98 percent completed. In the course of the negotiations for the new program the Ministry of Economic Affairs has presented satisfactory evidence that the National Government has assigned sufficient funds for the completion of these works, which are expected to be finished before the end of 1977.

6.50 The original schedule called for completion of the works in the Buenos Aires conurbation in five years and those of Tucumán in four. The chief cause of delay, as in other projects carried out during the same period in Argentina, was in large measure the galloping inflation, which affected the general costs of the works financed and changed the basis of the corresponding contracts, and, moreover, hindered the timely availability of the complementary local contribution. Though the inflationary difficulties persist in the country, to solve the general problems of executing the works the Government has set up a mechanism for the periodic readjustment

of contracts awarded in public bidding procedures, and in outlays from the public purse gives highest priority to its investments in projects financed with funds borrowed from international organizations, which has contributed to the more efficient execution of the projects financed by the Bank.

- 6.51 The total cost of the project, originally estimated at US\$45,200,000, had climbed by the date of the evaluation to US\$60,343,000. This increase was caused mainly by the rise in prices that took place during the period and, to a lesser extent, by the addition of works that had not been provided for at the start and nonbasic changes made in the projects to incorporate technological advances to the works in progress. The cost overrun was covered by additional local contributions.

2. Rates

- 6.52 During execution of the programs financed with loans 43/SF-AR, 86/TF-AR and 70/SF-AR the difficulties were encountered that in the Buenos Aires area and in the large inland cities hindered the establishment of a rate and metering policy in line with the contracts entered into with the Bank. The unprofitability of the systems has generated substantial operating deficits which, though covered by state appropriations, have caused considerable delays in the availability of needed counterpart funds, and have helped retard the normal execution of the projects.
- 6.53 The following table shows the billings, operating costs and debt service during 1974, 1975 and 1976 for the urban potable water supply systems financed with loans 43/SF, 86/TF and 70/SF.

Systems financed with loans 43/SF, 86/TF and 70/SF

(In millions of Argentine pesos)

	<u>1974</u>	<u>1975</u>	<u>1976</u>
Billings	<u>131</u>	<u>495</u>	<u>1,985</u>
Administrative, Operating and Maintenance Costs	141	612	2,990
Interest on IDB loans	4	5	34
Amortization of IDB loans	<u>15</u>	<u>20</u>	<u>145</u>
	<u>160</u>	<u>637</u>	<u>3,169</u>
Surplus (Deficit)	(29)	(142)	(1,184)
	=====	=====	=====

6.54 During the years in question billings rose more slowly than costs. In 1974 billings covered 82 percent of the administrative, operating and maintenance costs and debt service, in 1975 they covered 78 percent and in 1976 only 63 percent. The rate clause has not, therefore, been complied with.

6.55 Following is the record on collections, which shows an upturn in 1976 after having sunk rather low during 1975.

	1974		1975		1976	
	Arg. pesos	%	Arg. pesos	%	Arg. pesos	%
Billings	131	100	495	100	1,985	100
Collections	112	85	216	44	1,338	67

6.56 Receipts on billings rose 275 percent in 1975 compared with 1974 and 413 percent in 1976 from the previous year. Yet costs rose even more steeply so that, whereas in 1974 receipts covered 90 percent of the costs, in 1975 they covered 57 percent and in 1976 only 52 percent.

6.57 As a result of the rate increases introduced in June 1976 in the eight communities where the Bank financed programs for extension of the potable water supply networks (loans 43/SF-AR and 60/SF-AR), Avellaneda has already succeeded in closing 1976 with a surplus. With the new increased rates Mendoza, Córdoba, Lomas de Zamora and Lanús should pass the break-even point in the course of 1977, and Jujuy, Tucumán and Almirante Brown next year. The entire enterprise should close 1977 with a profit of 10 percent of operating income.

(In millions of Argentine pesos) 1/

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1985</u>
Operating income	53.9	71.9	83.8	92.8	97.4	117.9
Expenses/Operating costs	<u>46.6</u>	<u>62.0</u>	<u>64.1</u>	<u>66.3</u>	<u>68.7</u>	<u>79.3</u>
Operating profit	7.3	9.9	19.7	26.5	28.7	38.6
Financial charges	<u>2.3</u>	<u>2.8</u>	<u>2.8</u>	<u>2.5</u>	<u>2.0</u>	<u>1.2</u>
Final profit	<u>5.0</u>	<u>7.1</u>	<u>16.9</u>	<u>24.0</u>	<u>26.7</u>	<u>37.4</u>

1/ US\$11 Arg.\$345.

6.58 The installation of meters, which the executing agency was supposed to do in the beneficiary areas with funds additional to the program, was also delayed. The new policy of making the public utilities self-financing has radically changed the situation in this regard, as was described in paragraph 2.19. In a note of April 28, 1977 the Ministry of Economic Affairs has confirmed to the Bank the decision of the Government to develop this new rate policy to correct past failings.

"The aim of the new policy," the note reads, "is to discourage waste by having every user pay for actual consumption at rates set in awareness of the various costs of the service at efficient levels of operation and having regard for the socioeconomic situation in the region so as to avoid hurting the poorer users.

"Moreover," it adds, "the NATIONAL EXECUTIVE BRANCH has decided to implement this policy in the shortest possible time consistent with the magnitude of the problem, in view of the substantial change that will have to take place before the policy can take full effect."

VII. SOCIO-ECONOMIC ANALYSIS OF THE PROGRAM

A. Rural Subprogram

1. Introduction

- 7.01 The provision of water supply systems with household connections in rural areas yields many private and public benefits, most of which cannot be quantified. First, such systems reduce the incidence of water-borne diseases. Second, they reduce medical costs and improve labor productivity. Third, by making water free from impurities available in the house they eliminate the need to carry water or to maintain expensive, and frequently polluted, private wells. Finally, they improve rural living conditions and the quality of rural life and help to stem the migration to the towns.

2. Community selection criteria

- 7.02 In previous programs in Argentina, the community selection methodology was based on the following factors, which are retained in the new program:

- (a) The population of the community had to be in the 100 to 100,000 range.
- (b) There had to be suitable access to the community for bringing in construction and drilling equipment.
- (c) At least 70% of the owners to be served by the system should be prepared to assume the prorated share of the contribution that the community was required to make to the project.
- (d) The community had to be able to pay the required water rates.

- 7.03 Two further requirements would be added under the proposed program:

- (e) The community must not possess a water supply system able to supply more than 120 liters a day per head of existing population.
- (f) The project must have a cost-effectiveness ratio of not more than 15 on the basis of the complete project (for details, see paragraph 7.05).

- 7.04 Ideally, the communities should be selected so as to maximize the economic and social benefits summarized in paragraph 7.01, within resource and priority limitations. However, this ideal system of selection cannot be used in this type of program because the necessary information is not available in advance about the whole of the potential users or communities to be benefited. As an acceptable

alternative, a methodology based on cost-effectiveness ratios is used to arrive at a reasonable and equitable selection. This criterion, which the Bank has been applying in all rural water-supply programs, seeks to maximize the number of beneficiaries per unit of investment and operating cost by excluding individual systems with higher per-user costs.

- 7.05 The methodology can be summarized as follows. The annualized capital cost (both initial and replacement) is added to the annual operating and maintenance cost, the contribution by the community (analyzed) is deducted, and the net total is divided by the design population of the target community.
- 7.06 The methodology takes account of the community's contribution to the project by proportionately reducing the annualized project cost. In this way, communities with a relatively expensive system can qualify under the program by increasing their contribution to their particular project.
- 7.07 In applying this selection methodology, exceptional treatment may be justified in the case of communities with a high incidence of water-borne diseases or other problems related to water quality, such as a high content of arsenic, salts, fluorides or other salts. If high-cost systems are needed to resolve these problems and the income level of the community does not permit it to make a bigger contribution to the project, special treatment can be given, subject to the Bank's prior case-by-case approval. The aggregate cost of all systems financed on this exception basis must not exceed 10% of the total investment cost of the subprogram.
- 7.08 The method of calculating the cost-effectiveness ratio is as follows:
- (a) The total investment cost of the complete project (including impoundment, transmission and distribution), or its equivalent, is calculated in terms of annualized cost per annum (U.S. dollar equivalent) for the useful life of the project and discounted at 12%. In the case of projects to be supplied from public sources and of communities that already have partial service, the calculation has to include an estimate of the total cost of a complete distribution network. ^{1/}
 - (b) The proposed contribution by the community, annualized, is deducted from the estimated investment cost.

^{1/} On the basis of a cost analysis of various projects, it is estimated that household connections account for 10% of the capital cost of a typical project. The chlorine treatment plants represent a surcharge on capital and operating costs which can increase the cost-effectiveness ratio by 5%.

- (c) The average cost of operation, maintenance and administration of the project over its useful life is estimated on the basis of the best information available at the time of final selection of the project.
- (d) The design population for 20 years following the start of construction must not exceed the national average population growth rate (unless there is special justification).
- (e) The total annualized cost (a - b + c) is divided by the design population (d) to give the cost-effectiveness ratio.

7.09 SNAP, with the corresponding SPARS, has prepared 130 projects which have been submitted as a representative sample of the subprogram under study. These projects were appraised from the cost-effectiveness standpoint, with the results detailed in the tables in Annexes 25 and 26 and summarized below:

Number of Projects	Cost-effectiveness ratio (US\$)				
	Under 5	5-10	10-15	15-20	Over 20
130	16	42	33	12	18

- 7.10 The above figures show a wide cost-effectiveness spread. The lower range results from the inclusion of towns that would be served only from public water sources. The spread for complete water service, from under 5 to over 50, means that the average cost per user can be reduced by eliminating the higher-cost systems. The lower part of Annex 26 shows the investment costs per head of population of the communities, grouped according to cost-effectiveness ratios. Both the per capita investment cost and the cost-effectiveness ratio are inversely related to the size of the town to be served, although the calculations can be affected by special-factor costs in particular cases.
- 7.11 In the light of this analysis and of experience with similar projects in other countries, it is recommended that projects with a cost-effectiveness ratio higher than 15 should not be financed under the program except in the justified cases mentioned earlier. This limit is sufficiently flexible to allow full utilization of available resources while ensuring accomplishment of the goal of benefiting the largest possible number of people through the program. For example, if the 39 projects with a cost-effectiveness ratio higher than 15 were replaced by projects with averages of under 15, the program could reach nearly 70,000 more people than the sample batch of projects.
- 7.12 Comparison of the bases of selection proposed for this program with those used in other projects financed by the Bank shows that

the cost-effectiveness ratio is higher than the highest ratio applied in the past (12.5, Chile, Loan 499/SF-CH). However, apart from the difficulties of comparisons between different countries, including distortion of cost comparability, the difference can be justified in this case by the fact that Argentina's projects include certain components that were not present in the others. In the case of Argentina, the design of the household connections includes 15 meters of piping and, in most cases, an indoor cistern, to be financed as part of the program. Moreover, chlorine treatment, at least, is to be provided for all systems. Household connection by itself increases to up to 10% of the cost of a project. Chlorine treatment increases both the capital and the operating costs, estimated in cost-effectiveness terms at another 5%. Taken together, these two factors mean that the limit recommended for Argentina is practically equivalent to that used for Chile.

- 7.13 The ratio recommended eliminates in principle 30% of the sample subprojects, accounting for 5.5% of the study population. However, this figure can be reduced by updating the individual project costs, modifying the designs and increasing the community contribution. At the same time, the final cost can be expected to increase in other cases, in the light of detailed information, raising the ratio to above 15.

3. Description of the beneficiaries

- 7.14 For all communities participating in this subprogram, socio-economic studies would have to be carried out covering family income, reactions toward priority community interest, etc., to provide data on the income levels of the communities included in the sample of projects submitted to the Bank.
- 7.15 The data for a sample of 67 original projects were adjusted to eliminate the effects of inflation, taking 1976 as the base year to compare them with national-accounts income trends and grouping them by provinces, as shown in the following table. Comparison of these data shows that the average income levels of the potential beneficiaries put them in the group with incomes equivalent to 40% of national per capita income and that all the communities except Santa Fe belong to the under-30% income group.

Average income level
of a sample of communities of Subprogram B

	<u>Number of</u> <u>communities</u>	<u>Average per capita</u> <u>income (US\$)</u>
Buenos Aires	8	765
Catamarca	8	464
Córdoba	13	340
Entre Ríos	1	434
Formosa	3	725
Mendoza	8	730
Misiones	6	646
Salta	1	566
San Juan	5	661
San Luis	3	380
Santa Fe	4	888
Santiago del Estero	2	380
Tucumán	5	562

4. Water rates and ability to pay

- 7.16 In line with Argentina's policy of self-financing of public services, the users will pay water rates that cover the whole of the operating and maintenance costs and also certain debt-service costs, depending on the financial arrangements. The community contribution to the cost of the project is expected to average 15%. The rest of the financing, for an average community, is expected to be provided 55% from IDB resources, 20% from national funds (SNAP) and 10% from provincial government contributions (SPAR). The central and provincial government contributions will be in the form of grants. That of IDB is amortizable in the equivalent in dollars of the original investment. This means that the community will on average pay about 70% of the actual cost of the project, though with a wide variation from community to community above and below this average.
- 7.17 The average water cost on the basis of the present rates structure was US\$0.16/m³, equivalent to US\$2.40-4.80 per month for a consumption of 15-30 m³/month per connection. These rates seem to be reasonable in the light of a minimum rural daily wage of approximately US\$2.50 equivalent per day and of average family income for the subprojects sample, which ranges from US\$70 to US\$180 in terms of money income of the population. In terms of days' work, the minimum consumption of 15 m³/month will be equivalent to less than one day's work for laborers on the minimum daily wage and, of course, even less for the higher paid workers. This rate of water charge is in line with the parameters of the Pan American Health Organization (Pan American Sanitary Bureau) which recommends that the cost of water should not exceed 3% of income in rural areas.

- 7.18 Both the direct contribution to the project and proposed water rates are within acceptable limits from the standpoint of the capacity to pay of the benefiting communities, for which they do not constitute an excessive unreasonable burden. As indicated in paragraph 7.14, a socio-economic study will be carried out for each project, covering community income levels. This information will be extremely useful in determining the community's contribution and in estimating its capacity to pay the required water rates.

B. Urban Subprogram

1. Introduction

- 7.19 La Matanza is well known in Buenos Aires as an area where public services, including transportation, are very scanty, so that land values have been relatively low. For the latter reason, the district has been heavily populated by manual workers and low-income families seeking housing within their means. Either as the cause or as the effect of this, the district has also heavily attracted industrial plants, particularly those that need large tracts of land and a large labor force. These characteristics are evident in the population census figures. In 1914, the population of the district was only 18,000. By 1947 it had risen to 98,500 and in the next 13 years it quadrupled, to 402,000. By 1970 it had reached 658,000 and is today estimated at 900,000. Thus, the population has increased ninefold in 30 years.
- 7.20 The economy of La Matanza is largely industrial. In 1971 almost three quarters of the value added of the local economy was accounted for by industrial production (three fifths by textiles, automobile manufacture and basic metal industries); second in importance came commerce, with only 7.5% of the total. La Matanza ranks third in industrial production after the Federal District and Avellaneda; it accounts for 10% of the industrial production of Greater Buenos Aires (excluding the Federal Capital).
- 7.21 La Matanza's development has been influenced by three access routes: two railroad lines, which practically form the northern and southern boundaries of the district, and Route 3, which runs through the middle of it. Sporadic attempts have been made during the last two decades to provide the growing population with other services, particularly in the most densely populated part, in the vicinity of the railroad station. There is a population group with communal services in the southern part of the district, where there are high and medium density housing concentrations. Similarly, the combination of available means of transportation, water supply and partial sewerage service on the northern edge of La Matanza has led to the formation of a small nucleus of medium and better class housing.
- 7.22 The first stage of the La Matanza project consists in extending the main supply and distribution systems (including meters and household

connections) to an area of about 6,810 ha. Owing to interconnection of the system and to the urban expansion which extends beyond the district's administrative boundaries, the project will make it possible to extend the existing services to about 60,000 people in neighboring districts and possibly to expand the services to 150,000 people. In a later stage the services will be extended to include a further 2,200 ha of La Matanza; they will then reach 75-80% of the district's estimated future population. The main beneficiaries of the new system will be neither the industrial plants, which have their own water supply, nor the people that already have service, but the population with no water supply and the areas not yet served, whose population density is expected to increase greatly in the next generation.

- 7.23 No statistical data relating specifically to the population of the target area are available. Therefore, the socio-economic level and quality of life of the target population is below those cited in the following comments and information concerning the district as a whole.
- 7.24 The census data on occupations can be classified under three headings: upper, middle and lower occupations. The last group includes commercial employees, manual workers, services staff, drivers, etc. It covers about three quarters of the total population that was in paid employment in 1970; this proportion is higher by 29% than that for the rest of metropolitan Buenos Aires and slightly above that for the rest of the country.
- 7.25 At the time of the census, less than 20% of La Matanza's population had some secondary education, compared with 28% for the rest of the metropolitan area and an average 21% for the rest of the country. The illiteracy rate, which is significantly low in Argentina, was slightly higher in La Matanza (5%) than in the rest of the metropolitan area.
- 7.26 Housing is another important indicator. Overcrowding was worse in La Matanza than in the rest of the metropolitan area (1.5 persons per room, compared with 1.25), though the proportion of owner-occupiers was higher (70%, against 56%).
- 7.27 The following figures illustrate the comparisons made in the preceding paragraphs: (see breakdown in Annex 27)

(Percentages)

	<u>La Matanza</u>	<u>Rest of the metrop. area</u>	<u>Rest of Argentina</u>
White-collar and manual workers	73.5	57.0	69.8
Education beyond primary school	19.5	28.0	21.3
Illiteracy rate	5.0	3.5	7.9
Occupants per dwelling	1.5	1.25	1.4
Owner-occupiers	69.7	55.9	59.3
Population growth 1960-70	63.8	21.4	13.7

- 7.28 In sum, the above data show that La Matanza is a working-class suburb. The high percentage of owner-occupiers means that the project would to a high degree benefit the people living in the area rather than absentee owners. These characteristics are related to the lacking water-supply and deficient transportation services, which have kept land values in the area low and have fostered rapid expansion both of industry and of housing for low-income workers unable to afford to live elsewhere.
- 7.29 When we eliminate the part of the district which at present has water service and which is classified in the medium to high socio-economic category, particularly the Ramos Mejía area, the lower working-class character of the area that would benefit from the project is more clearly evident.

2. Demand projections

- 7.30 The OSN system, which supplies part of La Matanza and the neighboring areas, serves a population of about 290,000, of whom 230,000 live in La Matanza. A recent inspection program by OSN revealed a high number of illicit water connections in the area, so that the number of people actually served may be rather higher. On the basis of the estimate of 290,000 beneficiaries, present water consumption is estimated at 328 liters per person per day; if illegal connections are taken into account, however, average consumption becomes slightly less.
- 7.31 Industry depends for supply on its own wells, a fact that has led to lowering of the water table. The water source for OSN's present system is a number of wells that are already producing at only half their original capacity in order to maintain the saline levels of the aquifers.
- 7.32 The basic facilities of the project will provide service to one third of the La Matanza area, which contains about 80% of the district's present population. The population of the area served is expected to grow by an annual 2.2% a year over the design life of the project (in contrast to 5% over the period 1960-70), from 700,000 people in 1977 to 1.45 million in the year 2010. By the latter year the average population density of the area served will be 132 persons per hectare, very close to the present Federal District density of 149. On the basis of these projections and of an assumed average daily consumption of 350 liters per person (including losses, and taking into account public, residential and commercial consumption), the system will be able to supply the needs of a population of 1.45 million plus a further 150,000 in the adjacent areas. This projection assumes that the existing wells will continue to produce sufficient water for about 100,000 persons (about 35,000 cubic meters a day). (See Annex 28)
- 7.33 Industrial demand has been excluded from these calculations for various reasons. First of all, it is expected that the greater part of industrial demand will continue to be self-supplied since the water will probably be cheaper to produce than the rate that will be charged for La Matanza. Secondly, the amount of water needed will depend on the

type of industry that is set up and it is impossible to know this in advance. Finally, although industrial consumption represents a relatively large share of future consumption, the main investments in the project will be unaffected; the only change would be that total utilization would be reached before the year 2010. Considering the probable magnitude of error in the population projections, they are relatively insensitive to changes in industrial water consumption.

3. Analysis of alternatives

- 7.34 There is little room for choice in the method of supplying water to the population of La Matanza. As already stated, the ground-water supply is insufficient to serve even a third of the present population. The area has no surface water sources. The only viable alternative is to connect into the network that uses the water of the River Plate, which serves the greater part of the metropolitan area of Greater Buenos Aires. As regards sources of supply, the alternatives are limited to lengthening the system of tunnels or converting to a conventional system of pressure-pipe transmission. These two alternatives were studied, and the findings indisputably favored the tunnel solution. Although the tunnel costs about 33% more than the pressure-pipe alternative, the tunnel is favored because of its almost negligible operating and maintenance cost (since it is a gravity system) compared with the high pumping and maintenance cost of the pressurized system.

4. The beneficiaries ability to pay

- 7.35 On the basis of prevailing income levels in the area it is considered that the local families in the area will be able to pay the operating and capital cost of the service to be installed. This cost is estimated at about US\$0.13 per cubic meter. For the minimum consumption of 15 m³ a month (approximately 130 liters a day per person), the water cost would be US\$2 per month, i.e. only two thirds of the minimum industrial wage of US\$3 a day; this rate is considered to be acceptable. Possible consumption for a full daily minimum wage would be 23 m³/month, or about 200 liters a day per person, which is sufficient to meet basic family needs. Considering that, generally speaking, the minimum wage applies to the poorest segment of the population and that there is usually more than one person working in a family, it is considered that there is adequate capacity to pay for the water service that would be provided.

5. Meters program

- 7.36 At the end of 1976, OSN had a total of about 1,870,000 water connections throughout the country. Of these, about 90,500 (5%) were metered, though only 62,000 meters were working. The water rates system used by OSN up to now does not require the use of meters. So long as most of the water used was not subject to a consumption charge, the meters furnished only statistical information. However, with the new policy of the Argentine

Government of charging the cost of the service to the direct beneficiaries, the water meters have become very important. OSN has accordingly already begun execution of a program of installation of water meters which will add 54,000 meters in 1977 (40,000 new and 14,000 reconditioned), chiefly among the large commercial and industrial users. The program now proposed will add a further 400,000 meters to the system (300,000 outside La Matanza), which will provide almost total coverage of all large users in the country, accounting for 20% of the estimated total connections outside La Matanza by the end of the program.

- 7.37 The meters program in itself brings only minor benefits, in terms of control and management of the water systems. Its major contribution is connected with the application of a schedule of water rates that reflect the cost of production, transmission and distribution of the water. A combined program of charging for water and metering will make it possible to eliminate waste of water. The economic benefits of this program are enormous in comparison with the cost of executing it. This can be illustrated by a few calculations based on simplified assumptions.
- 7.38 The main assumption is that the cost of operating a metering program will not differ greatly from the cost of maintaining a register of information for charging purposes. This means that the staff now responsible for collecting the information and payments, answering questions and dealing with complaints under the present system will be able gradually to change over to meter reading and related collection work.
- 7.39 It is assumed that the 300,000 meters to be installed outside La Matanza (which represent about 15% of the connections) account for 30% of the water consumed. If consumption can be reduced, as in other systems where meters have been installed, by 30%, it will be possible to save about 9% of the water now consumed, i.e. about 185 million cubic meters a year. Assuming a water production cost of only US\$0.05 per cubic meter, the annual saving in operating and maintenance costs alone would amount to US\$9,250,000. If we include the opportunity cost of the overdimensioned production, treatment and transmission facilities (which would make it possible to serve larger populations or to increase the design life of the facilities), the savings could double. Comparing these savings with the capital cost of the project (US\$15 million) it will be seen that the potential benefits would pay for the cost of execution of the program in less than two years, giving an internal rate of return of the order of 50%.

6. Cost-benefit analysis of the project

- 7.40 The model prepared by the Bank for appraisal of urban water-supply project makes it possible to carry out cost-benefit, opportunity and sensitivity analyses on the basis of minimal information. Because of the rates and metering problems described, the use of OSN figures has been avoided as far as possible. It has nevertheless been possible to estimate on these conservative bases the values for particular parameters related

to the project in order to determine its feasibility. This exercise was based on the total cost of the project, estimated and adjusted calculations of operating and maintenance costs, demand projections, and additional investments, similar to those included in Annex 28. This analysis shows that the net present value of the project, discounted at 12%, is approximately US\$21 million and that the internal rate of return is 13.7%.

- 7.41 The benefits thus calculated are sufficiently high to offset or justify their cost. It is considered that with more detailed information about actual consumption levels the economic efficiency of the project would be found to be even higher.

7. Evaluation

- 7.42 OSN and SNAP will be required to submit to the Bank, within two years following the last disbursement, an evaluation report on the socio-economic results of the respective urban and rural subprograms, which shall include:

(a) For the Rural Subprogram:

- (i) A comparative statement of the water-service situation in the rural population centers at the beginning and at the end of execution of the project.
- (ii) A comparison of the actual cost effectiveness of each project with that originally calculated.

(b) For the Urban Subprogram and the Meters Program:

- (i) Information on the number of connections in La Matanza, classified according to consumer category (industrial, commercial, public and residential), population connected, total population of the area served, and average consumption for each type of connection).
- (ii) Operating and maintenance costs of the La Matanza system.
- (iii) Evaluation of execution of the meters program, classified according to consumer categories, monthly consumption levels and water rates charged for each group.

VIII. FINANCIAL PROJECTIONS

A. Rural Water Supply Systems

1. Financial Projections

8.01 Given in Annexes 12 and 13 are the projected income statements and sources and application of funds statements over a period of 10 years for the rural water supply system projects. Balance sheet projections were not prepared because they would have little significance inasmuch as more than 200 separate items are involved.

2. Basic Assumptions

8.02 (a) The project would be financed as follows:

Capital	US\$30,000,000	45%
IDB Loan	37,000,000	55%
	<u>US\$67,000,000</u>	<u>100%</u>

(b) The terms and conditions of the IDB loan would be as follows:

(i) US\$10.3 million, at 20 years term, 4-1/2-year grace period, 8.35% annual interest, and 1-1/4% credit commission.

(ii) US\$26.7 million, at 25 years term, 4-1/2-year grace period, 3% annual interest and no commitment fee.

(c) The basis of the estimates of connections, rates and operating expenses are given in Annex 11.

(d) The average lifespan of fixed assets was estimated at 50 years, depreciated using the straight-line method.

3. Income Statements

8.03 The fifth year would be the first in which all water supply systems would be operating and when the finance charges would begin to accrue. In that year and in the next one there would fairly small losses which would be absorbed by retained earnings in the fourth year. Profits would then begin to accrue and amount to US\$3 million at the end of the tenth year.

8.04 Once all systems become operational, revenues would cover the expenses associated with the operation, maintenance, management and depreciation and financial charges, except in years 5 and 6 during which a small part of the financial charges would not be covered.

4. Sources and Application of Funds

8.05 Over the years of project execution, the sources and applications of funds reflect contributions and construction work. From the fifth year

on the generation of funds would be entirely internal and be derived from earnings before financial charges and depreciation. This internal generation marks an upward trend which reflects the increase in the number of water supply connections.

- 8.06 Virtually all applications of funds from the fifth year on are for debt servicing, amortization to be in equal installments and interest payable in declining installments.
- 8.07 During years 5, 6 and 7 there would be a fairly small deficit which would cause no problem since the earned surplus would be sufficient to cover it. At the end of the tenth year the earned surplus would amount to US\$2.6 million.

B. La Matanza

1. Financial Projections

- 8.08 Given in Annexes 4 and 5 are the income statement and the source and application of funds statements projected for a 10-year period. No balance sheet projections have been given, inasmuch as the OSN, and therefore La Matanza, have not revaluated their fixed assets and these constitute virtually all the assets of La Matanza at present.

2. Principal Assumptions

- 8.09 (a) The project would be financed as follows:

Capital	US\$25,000,000	24%
CNAS Loan	US\$34,000,000	32%
IDB Loan	US\$46,000,000	44%
	US\$105,000,000	100%

- (b) Terms and conditions of the CNAS loan: interest at 7% per annum, with indexing to allow for inflation, interest during construction, a 25-year term, and a 4-1/2-year grace period.
- (c) The CNAS would be the financial intermediary for the IDB loan, transferring the funds to OSN at 1% over the interest charged by the IDB.
- (d) The projections include revenues and expenditures from operation of the existing water supply service at La Matanza, except depreciation on the present fixed assets, which were not included inasmuch as such fixed assets have not been revaluated.
- (e) The terms and conditions on the IDB loan would be as follows:
- (i) US\$21.9 million at 20 years term, 4-1/2-year grace period, 8.35% annual interest and 1-1/4% credit commission.

- (ii) US\$24.1 million, at 25 years term, 4-1/2-year grace period, 3% interest, no commitment fee.
- (f) The bases for calculating the number of connections, service rates and operating expenses are explained in Annex 10.
- (g) The average life of the fixed assets was estimated at 50 years, depreciated using the straight-line method.

3. Income Statements

- 8.10 During the years of program execution, the income would correspond to the present-day system, which at the beginning would show losses and thereafter profits; however, it should be taken into account that the expenses do not include depreciation. In this respect it was recommended that the OSN should supply the IDB, in the first year after the execution of the contract, evidence of having revaluated the assets. This would be necessary in order to determine the operating expenses accurately, and therefore, establish adequate rates.
- 8.11 From the fifth year on, the depreciation given would apply only to the project assets; however, it is estimated that the effect that depreciation would have at that time on the revaluated present-day assets would be small.
- 8.12 The income statement shows a US\$2.6 million loss in the fifth year (when operations under the new project would begin) which would continue to decline and which, five years later, would add up to more than US\$8 million. The cause of the loss is a too small capital contribution to the project (37%), which would produce a high debt (76%) and, therefore, high financial charges. The financial charges in the first year of project operation, would be 45% of total expenditures, which share would decline to 37% five years later, though this would still be high.
- 8.13 Net income from operations, that is, earnings before finance charges would in the fifth year cover about one half of the finance charges, which in nearly equal parts would be due to CNAS and the IDB. In order to cover all financial charges in that year it would be necessary to raise rates 30% and, by nearly 50% if it is desired to cover the cash flow deficit. After the fifth year net income from operations would increase as a result of the increase in the number of connections, and by the tenth year cover nearly all finance charges.

4. Source and Application of Funds

- 8.14 During the first four years the sources of funds are the various contributions to the project and, of course, their application would be

the construction cost. In the following years the sources would be the earnings before finance charges and depreciation. Nearly all the applications are made of debt servicing, which is quite high and would create a deficit of US\$4 million in the first year of service operation. The annual deficit would decline and by the tenth year it would stand at US\$2.5 million. However, by that time, a deficit of US\$21 million will have been accrued. This deficit recorded by the La Matanza system would be offset by higher revenue from the metropolitan area as a whole.

- 8.15 The deficit in the fifth year is equal to the service on the CNAS debt and to part of that debt service in the following years. Therefore, the project would in the first year of operation generate funds to cover operating, maintenance and management expenses and provide for servicing the debt with the IDB and in the next several years part of the service on the CNAS debt. The rest of the service on the debt owed the CNAS must be covered either by the OSN, or by the government, since the deficit would be due to very low capitalization.

IX. JUSTIFICATION OF THE PROGRAM

A. Technical Feasibility

1. Rural subprogram

- 9.01 The studies, designs, plans and specifications of the 91 systems constituting the representative sample were prepared by the SNAP in conformity with the engineering standards approved by the Bank for Loan 302/SF.
- 9.02 The technical solution for each system was obtained on the basis of a comparative study of alternatives, especially with regard to source of supply. The type of surface water treatment was determined through comparative studies to obtain low cost plants that would be simple to operate. As regards the well-supplied systems, not only was the hydrologic survey done but the test well was drilled which would become the definitive one. As a safety measure no construction work may be initiated if the discharge from the source chosen has not been properly tested.
- 9.03 Preparation of the 135 engineering projects remaining would be contracted out to engineers and/or national engineering firms in Argentina. According to SNAP's experience, no problems are anticipated for completion of the remaining designs within the first year in the life of the prospective loan contract, bearing in mind that this activity is now in progress.
- 9.04 The SPAR and the SNAP would be in possession of the technical capabilities for supervising the construction work, for which purpose it is expected that SNAP will enlarge its staff in accordance with the current organizational scheme.
- 9.05 As with previous loans, invitations to bid would be combined for the supply of materials and for installation work, or construction work; that is, plans do not call for separate invitations to bid. All work would be done by contractors, except a small group of works that could be constructed by force account. No difficulties are anticipated in the supply of materials and/or the availability of manpower.
- 9.06 The time schedule for execution is consistent with experience gained in previous operations with the SNAP and allows reasonable periods of time for completion of each one of the scheduled activities.
- 9.07 The project budget was estimated allowing not only for national prices but making comparisons with international indexes. Construction cost escalation was analyzed and calculated according to the Bank's pertinent instructions.
- 9.08 In brief, all technical aspects have been carefully evaluated and it is concluded therefore that the subprogram is technically feasible.

2. Urban Subprogram

- 9.09 The La Matanza program is part of an integrated water supply program for the Buenos Aires Conglomeration, which is being installed in stages and whose technical feasibility was assessed and verified. However, in the analysis the comparison of alternatives between the river water and pumping scheme and the long delivery lines was considered, the first method having been found to be the best suited.
- 9.10 The demand, stated as 350 litres per person per day for determining the size of the project, is regarded as adequate. Use of this figure, which is 70% of the figure usually used by the company, signifies a major cost reduction in the primary distribution system. The revised plans and designs would be completed well before the prospective loan is declared to be eligible for disbursement and would allow for making invitations to bid in accordance with the time schedule.
- 9.11 The subproject designs are now at construction level, except the modifications to the primary system and the minor distribution network. Therefore, the estimate of direct costs may be regarded as reasonably safe. The budget calls for reasonable appropriations for cost escalation and contingencies.
- 9.12 The time schedule for execution has been carefully examined. It employs probable times to completion which were taken from the contract in progress on the said river channel, and local as well as international experience with projects of this kind. The time schedule for invitations to bid was prepared allowing for the operating capabilities of national enterprises so as to provide for their participation. It is concluded that the four-year schedule for construction can be met easily.
- 9.13 Construction work would be done by contractors chosen through international invitations to bid. In Argentina there is an adequate number of construction firms possessing the experience and capabilities. It is expected that for the more complex work of the La Floresta River-Matanza, the award will be made to a foreign firm or to an international consortium.
- 9.14 The company possesses the technical capabilities to supervise execution of the construction work for which purpose construction supervision units would be organized and staffed with experienced personnel.
- 9.15 As soon as construction work has been completed, operation and maintenance work would continue to be carried out by the Empresa de Obras Sanitarias de la Nación, which possesses the necessary capabilities and experience.
- 9.16 All technical aspects have been carefully evaluated and it was concluded that the subprogram is technically feasible.

B. Financial Viability

9.17 It is considered furthermore that the program is viable from the financial standpoint inasmuch as:

1. The contributions called for in the financial plans presented for each subprogram are viable and no difficulties are expected in their being made available.
2. The financial organization and systems of the participating executing agencies are satisfactory.
3. In order to provide its share of financing of the urban subprogram, the National Savings Fund (Caja Nacional de Ahorros) would sell on the market a package of private enterprise stockshares such as are regularly quoted low on the local securities exchange, which would make their placement easy.
4. According to the Argentine Government policy which accords first order of priority in its budget to projects financed with funds from international organizations, no problems are anticipated in getting the timely contribution of these funds.
5. The rate schedules applied to the rural systems will satisfactorily cover the operating costs of the systems and help to service the debt. The system of management through users' cooperatives will ensure a satisfactory coverage ratio and reasonable application of the rate-schedule parameters developed.
6. In the La Matanza Project, rate schedules to be applied would cover all system operating expenses, including expenses of management, operations, maintenance and service on the IDB loan. The possibility of effective application of this parameter will be enhanced by the government's decision to apply rates to potable water supply services such as will provide for self-financing of the services.

C. Social and Economic Justification

1. Rural Subprogram

9.18 Installation of the subprogram facilities would benefit about 400,000 persons in the Argentine rural areas who do not now have adequate drinking water supply services. The average annual income per capita of all beneficiary communities, at 1976 prices, does not even amount to US\$600 equivalent per annum, that is, less than one-half the national average. At the higher income level, the per capita income average is US\$888, whereas at the lower income level it is US\$340.

9.19 Services to be provided through the program would assist in substantially improving the health-status and living conditions of the

- 9.19 Services to be provided through the program would assist in substantially improving the health-status and living conditions of the beneficiary population. It would foster the development of a spirit of cooperation in the provision of the community's assigned share and enable it to exercise the responsibility it must undertake for the management and operation of the system. In carrying out the program of Loan 302/SF-AR various established cooperatives managed to achieve such a degree of efficacy that they have extended their operations into other services and not a few of them have equipped themselves with microcomputer equipment to achieve maximum efficiency in billing and charging for services.
- 9.20 The expected minimal socioeconomic effects of the program would be achieved through the rules established for the selection of beneficiary communities, which, in addition to ensuring that these would meet the established eligibility requirements, seek to provide that the facilities to be built would be the most economical ones as well as the best suited ones for the services that must be provided.
- 9.21 The rate-schedule scheme could be established in such a way as to cover the operating and maintenance costs of the systems without entailing a heavy burden on the actual beneficiaries' means.

2. Urban Subprogram

- 9.22 The area to benefit from the project is characterized by a large concentration of marginal-society population, that is, people who have mi- and income and, upon not being able to realize their aspirations, have settled in an area in which the cost of property, owing to lack of services, is fairly low. The works called for would directly benefit a present-day population of more than 700,000 persons, of whom, 73.5% are wage earners in the lower employment strata.
- 9.23 The basic underground river and pump house works, with regard to 40% of the investment amount of the subprogram, are capable of supplying a population of 1.5 million persons and would allow service to be extended later on to areas in which the average income levels of the population could be even less.
- 9.24 The rate-schedule and water meter plan on which the subprogram is based must contribute not only to the solving of the financial difficulties of the company in charge of supplying water to 70% of the total national population, but assist effectively in regulating actual water use and eliminating wastage resulting from the lack of a rate charge based on actual consumption at each service connection.
- 9.25 The rate schedules to be applied in the project area are within the limits of the beneficiaries' ability to pay.

D. Use of the Fund for Special Operations

- 9.26 Projects to be installed under this program are aimed at helping the lower-income sectors of the Argentine population. The rural subprogram would benefit about 400,000 persons in rural areas that do not now have drinking water supply services. The average annual income per person of all the beneficiary communities is less than the equivalent of US\$600 per annum. The services to be installed would assist in improving the health-status and foster the development of a spirit of cooperation owing to the part assigned them in the financing of the project and in the management and operation of the systems to be built.
- 9.27 The area to benefit from the La Matanza urban project is characterized by a heavy concentration of working population who have migrated to the capital city in search of better opportunities, and who, because of a limited means, have settled in this area in which the cost of the property, owing to the lack of services, is fairly low. As much as 74% of the population in this sector consists of workers in low-level jobs. The annual average income of a worker in the area is US\$1,240, whereas the income of a working family of four persons, with two working members, is US\$2,480, which would yield an average income per person of about US\$620. The project would directly benefit this population segment since the central urban area now has a well-water supply service and industry in the area has its own water supply systems.
- 9.28 The FSO resources allocable to the program would be disbursed only in Argentine national currency.

ARGENTINAServicio de Agua Potable por Area Geográfica

<u>Area Geográfica</u>	<u>Población 1973</u>	<u>% de población servida</u>	<u>% de poblaciones en comunidades mayores de 100 habitantes servidas</u>	<u>% de comunidades de 500 a 10.000 habitantes sin agua</u>
Capital Federal	2.993.300	100	100	-
Catamarca	177.000	80	83	8
La Rioja	140.000	77	78	26
San Juan	394.000	70	86	61
Chubut	196.000	68	86	6
Tucumán	784.000	66	68	25
San Luis	188.000	65	93	4
Mendoza	998.000	62	90	4
Salta	521.000	60	85	24
Buenos Aires <u>1/</u>	3.485.000	57	69	79
Entre Ríos	833.000	55	82	17
Santa Fe	2.193.000	54	64	79
Córdoba	2.116.000	52	60	38
Tierra del Fuego	20.000	50	68	100
Santiago del Estero	505.000	48	52	76
Aglomerado Bonaerense	5.803.700	45	47	n/d
Jujuy	310.000	45	51	45
Río Negro	270.000	45	67	54
Corrientes	580.000	38	60	33
Santa Cruz	88.000	35	41	50
Formosa	245.000	28	62	22
Neuquén	160.000	26	37	7
La Pampa	178.000	25	37	31
Chaco	578.000	20	38	51
Misiones	454.000	18	41	71
TOTAL	<u>24.210.000</u>	<u>57</u>	<u>66</u>	<u>49</u>

Fuentes: Caja Nacional de Ahorro y Préstamo, SNAP, OSN y datos censales.

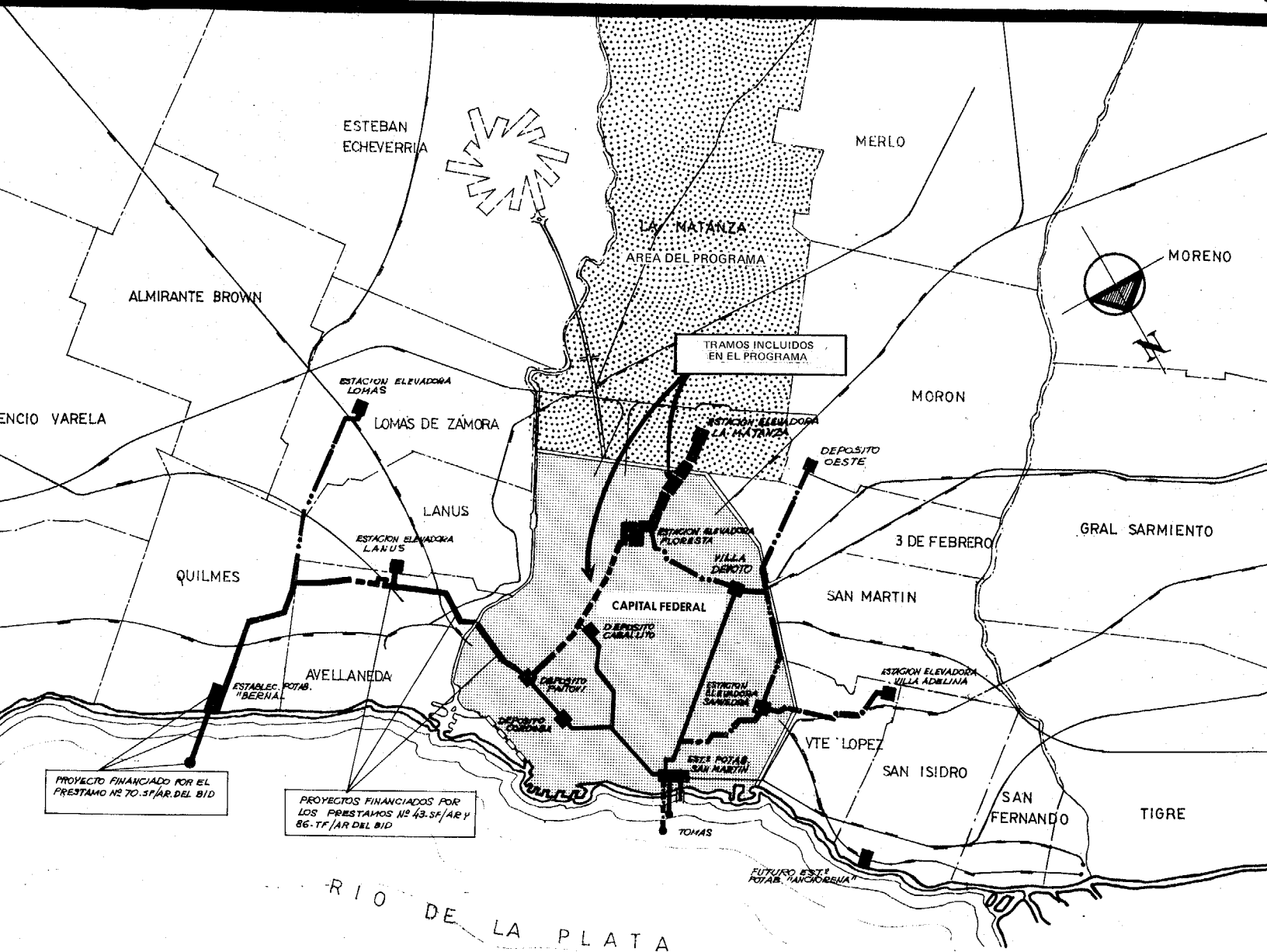
1/ Incluye el área de La Matanza.

ARGENTINA

Sistema de Agua Potable en el Aglomerado Bonaerense
1976

<u>Distrito</u>	<u>Población total estimada 1/</u>	<u>Población servida</u>	<u>Población sin servicio</u>	<u>Dotación de agua l/c/d</u>
Capital Federal	3.010.000	3.010.000	0	803
Almirante Brown	340.000	91.000	249.000	228
Avellaneda	350.000	342.000	8.000	346
Esteban Echeverría	140.000	8.000	132.000	354
Lanus	500.000	405.000	95.000	330
La Matanza	880.000	232.000	648.000	328
Lomas de Zamora	530.000	255.000	275.000	420
Morón	600.000	169.000	431.000	318
San Fernando	130.000	92.000	38.000	393
San Isidro	300.000	173.000	127.000	640
San Martín	420.000	130.000	290.000	426
Tigre	190.000	35.000	155.000	426
Tres de Febrero	350.000	113.000	237.000	240
Vicente López	<u>310.000</u>	<u>309.000</u>	<u>1.000</u>	<u>367</u>
TOTAL	<u>8.050.000</u>	<u>5.364.000</u>	<u>2.686.000</u>	<u>610</u>

1/ Proyectada según el crecimiento inter-anual 1960-1970.



RED DE ABASTECIMIENTO DE AGUA POTABLE DEL AGLOMERADO BONAERENSE

REFERENCIAS

- OBRAS EXISTENTES
- · — · — OBRAS EN EJECUCION
- - - - - OBRAS LICITADAS
- □ □ □ OBRAS FUTURAS
- ■ ■ ■ OBRAS DEL PRESENTE PROYECTO

PLAN DE OPERACIONES

ARGENTINA

PROGRAMA DE ACUEDUCTOS RURALES Y URBANOS

PLAN DE ADIESTRAMIENTO DEL PERSONAL DE LOS SPAR Y ENTES COMUNITARIOS

I. OBJETO

- 1.1 Este plan de operaciones tiene por objeto establecer las bases de un programa de entrenamiento para el personal de los Servicios Provinciales de Agua Potable (SPAR) y de los entes comunitarios que serán beneficiados con el Subprograma Rural a ejecutarse con la cooperación del Banco. El entrenamiento versará sobre operación y mantenimiento de los sistemas de agua potable rural incorporados dentro del Subprograma y tendrá por objeto:
- i) Adiestrar a personas de las comunidades impartiendo los conocimientos mínimos necesarios para que puedan tomar bajo su responsabilidad las tareas de operación y mantenimiento de los sistemas que le sean transferidos; y
 - ii) Crear en los servicios provinciales equipos de trabajo con experiencia y conocimientos adecuados para la ayuda a los entes comunitarios.
- 1.2 El beneficiario de la Cooperación Técnica sería la Nación Argentina y el organismo ejecutor el Servicio Nacional de Agua Potable Rural (SNAP).

II. DESCRIPCION DEL PROYECTO

- 2.1 Para el cumplimiento de los objetivos anteriores se dictarán 5 tipos de cursos, en diferentes localidades del país y en fechas igualmente diferentes, que serían dictados por profesionales locales seleccionados por el SNAP.
- A. Curso para Operadores-Administradores. Se dictarán 4 cursos con un total de 120 participantes.
 - B. Cursos para Supervisores de Operación y Mantenimiento. Se dictarán 2 cursos con un total de 70 participantes.
 - C. Cursos de Promoción Social. Se dictará 1 curso con un total de 30 participantes.

- D. Curso sobre Técnicas Contables. Se dictarán 2 cursos con un total de 50 participantes.
- E. Cursos sobre Inspecciones de Obra. Se dictarán 4 cursos con un total de 120 participantes.

Los cursos serán dictados por profesores y especialistas de ramas diversas, que serían contratados por períodos de corta duración de acuerdo a los requerimientos de cada curso. Se anticipa que para cada curso se necesitarían contratar de 3 a 6 profesores y especialistas.

III. PERIODO DE EJECUCION

- 3.1 El plan de entrenamiento sería desarrollado en un plazo de 48 meses contados desde la fecha del contrato de préstamo. Dichas actividades serán ejecutadas en forma coordinada con las demás tareas incluidas en el Subprograma Rural.

IV. COSTO Y FINANCIAMIENTO

- 4.1 El monto total de la cooperación técnica se ha estimado en el equivalente de US\$140.000 y sería financiado de acuerdo con el siguiente presupuesto:

(En el equivalente de US\$)

<u>Descripción</u>		<u>BID</u>	<u>Local</u>
1.	<u>Curso Tipo A</u> (Por curso)		
	Costos de contratación de		
	Profesores	2.400	
	Viáticos	900	
	Coordinación y Secretaría	2.100	
	Transporte y varios	2.000	
	Imprevistos	500	
	7.900 x 4 = 31.600	22.000	9.600
2.	<u>Curso Tipo B</u>		
	Costos de contratación de		
	Profesores	2.400	
	Viáticos	1.050	
	Coordinación y Secretaría	1.500	
	Transporte y varios	2.000	
	Imprevistos	500	
	7.450 x 2 = 14.900	10.000	4.900
3.	<u>Curso Tipo C</u>		
	Costos de contratación de		
	Profesores	2.400	
	Viáticos	900	
	Coordinación y Secretaría	1.500	
	Transporte y varios	2.000	
	Imprevistos	500	
	7.300 x 1 = 7.300	5.000	2.300
4.	<u>Curso Tipo D</u>		
	Costos de contratación de		
	Profesores	2.400	
	Viáticos	750	
	Coordinación y Secretaría	1.500	
	Transporte y varios	2.000	
	Imprevistos	500	
	7.150 x 2 = 14.300	10.000	4.300
5.	<u>Curso Tipo E</u>		
	Costos de contratación de		
	Profesores	2.400	
	Viáticos	900	
	Coordinación y Secretaría	2.100	
	Transporte y varios	2.000	
	Imprevistos	500	
	7.900 x 4 = 31.600	22.000	9.600
6.	<u>Imprevistos</u>	40.300	31.000
	Total	100.000	40.000

V. JUSTIFICACION DEL PROYECTO

- 5.1 El préstamo tendría por objeto financiar la construcción de aproximadamente 226 sistemas para atender alrededor de 270 localidades rurales y para lo cual se requiere contar con el personal que tendría a su cargo las diferentes actividades de promoción, construcción, administración y operación y mantenimiento. Este personal, que pertenecería a los Servicios Provinciales y a los Entes Comunitarios, sería en su mayoría personal nuevo que se incorporaría al subprograma y que no cuenta con el adiestramiento necesario, por lo que se justifica ampliamente el otorgamiento de esta cooperación técnica en forma paralela al préstamo.
- 5.2 Por tratarse de actividades de adiestramiento, cuyos gastos serían realizados en moneda local, se recomienda que su financiamiento se atienda con recursos del Fondo para Operaciones Especiales.

VI. CONDICIONES FINANCIERAS

- 6.1 Los recursos destinados a cubrir los gastos de la presente asistencia técnica formarían parte del préstamo a concederse a la Nación Argentina con recursos del Fondo para Operaciones Especiales para participar en el financiamiento de la tercera etapa del Plan Nacional de Servicios de Agua Potable Rural, y por tanto se sujetarían a las condiciones y términos establecidos en el contrato de préstamo respectivo.

VII. SELECCION Y CONTRATACION DE PROFESORES

- 7.1 El ejecutor seleccionará y contratará directamente los profesionales que tendrán a su cargo los cursos a desarrollarse. Para el efecto someterá previamente a la aprobación del Banco: (i) el procedimiento de selección; (ii) la nómina de profesionales entre los que hará dicha selección, señalando detalladamente sus antecedentes y experiencias; y (iii) los términos de referencia y los calendarios de trabajo respectivos. Con los recursos del programa no podrán contratarse a funcionarios destinados al plantel regular del SNAP o que formen parte del mismo.
- 7.2 Una vez que el Banco haya aprobado los requisitos anteriores, el ejecutor procedería a seleccionar los profesores. El proyecto de contrato que haya de suscribirse con cada uno deberá ser sometido a la aprobación del Banco.

VIII. DESEMBOLSOS

- 8.1 Los desembolsos se harían dentro del plazo aproximado de 48 meses contados a partir de la fecha del convenio respectivo, a medida que el ejecutor, por medio de un representante autorizado, justifique documentadamente el pago de los gastos imputables a la contribución del Banco. El aporte local se haría efectivo en el mismo plazo, simultáneamente y proporcionalmente con los desembolsos del BID.

IX. INFORMES

- 9.1 Los informes periódicos que el ejecutor presente sobre la ejecución del programa deberá incluir un capítulo cubriendo la ejecución del programa de entrenamiento. Asimismo el informe final que el ejecutor presente sobre el programa, deberá incluir un informe sobre la ejecución del programa de entrenamiento, sus observaciones respecto al mismo y una evaluación de los resultados de la cooperación técnica.

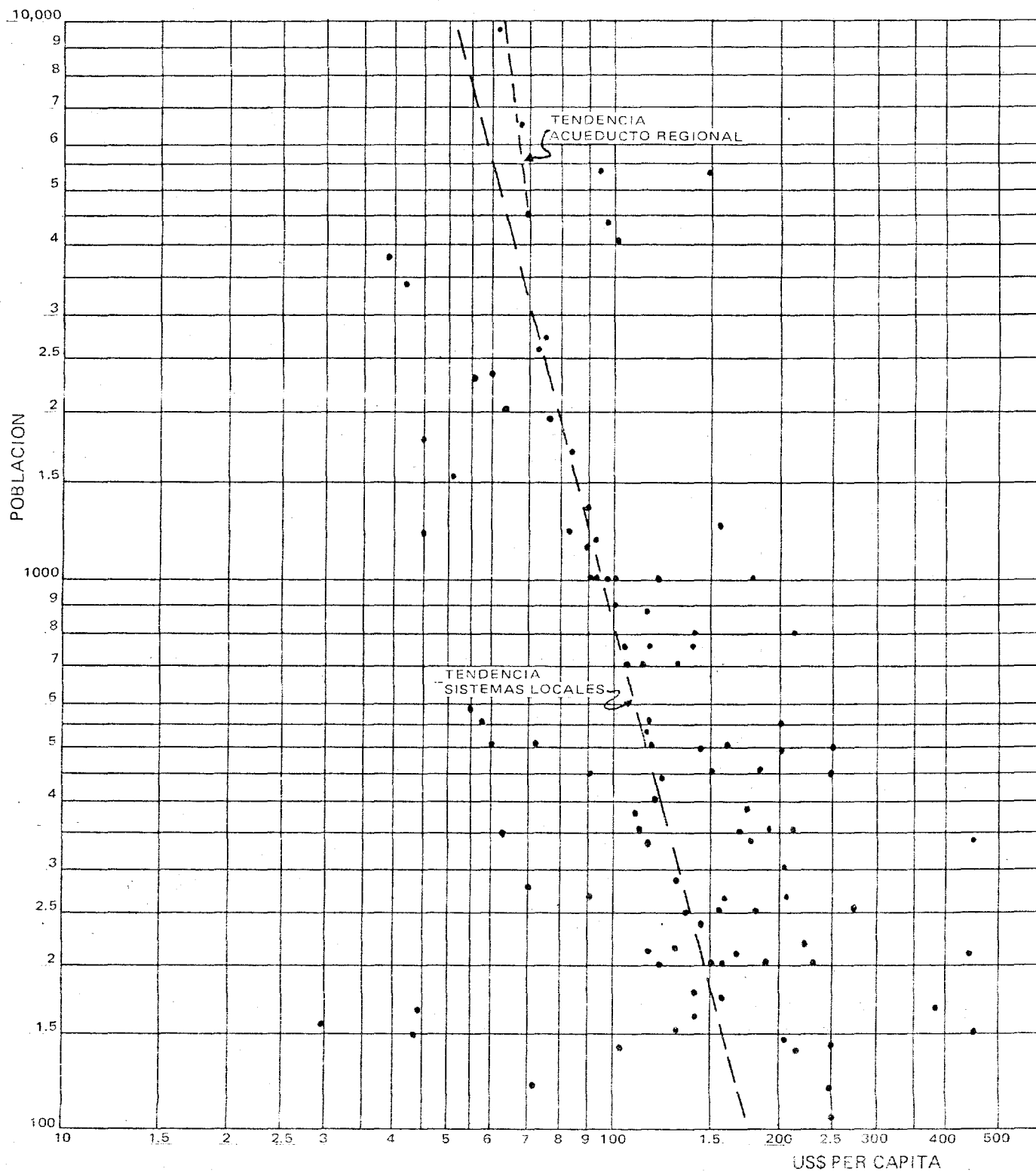
X. SUPERVISION

- 10.1 El Banco ejercerá la supervisión del programa por intermedio de su Representación en Argentina.

XI. RESPONSABILIDAD DEL BANCO

- 11.1 La responsabilidad básica de esta operación estaría a cargo de la División 6 del Departamento de Operaciones, Región II.

ACUEDUCTOS RURALES RELACION COSTO/POBLACION ACTUAL



ESCALAMIENTO1. Subprograma Rural

Se calcula el escalamiento sobre el calendario de inversiones de la categoría II costos directos aplicando un 12% anual para obra civil y 10% anual para los equipos.

Años	<u>Obra Civil</u>			<u>E q u i p o s</u>			Total Miles US\$
	%	Inversiones	Monto	%	Inversiones	Monto	
I	0,06	8.622	517	0,05	1.508	75	
II	0,187	11.052	2.067	0,155	1.228	190	
III	0,33	9.810	3.237	0,271	1.090	295	
IV	0,489	2.616	1.279	0,398	324	129	
		32.100	7.100		4.150	689	7.789
				que se redondea a			7.800 =====

2. Subprograma Urbano

Se calcula el escalamiento sobre el calendario de inversiones de la categoría II costos directos aplicando un 10% anual para obra civil y equipos.

<u>Años</u>	<u>%</u>	<u>Inversión anual</u>	<u>Escalamiento (miles US\$)</u>
I	0,05	8.504	425
II	0,155	30.713	4.760
III	0,271	20.984	5.687
IV	0,398	11.099	4.417
		71.300	15.289

Nota: Para el subprograma rural que por su naturaleza es una operación global se ha aplicado un criterio más conservador.

COSTOS INDIRECTOSSUBPROGRAMA RURAL

A. Obra Típica Perforación - San Manuel, Provincia Buenos Aires

Presupuesto \$5.744.970 (Pesos)

1. Perforación pozo

equipo de perforación \$20.000.000.
vida útil 10 años ejecuta 10 pozos/año

cada pozo \$200.000
considerando 50% equipo 100.000

2. Equipo excavador

costo partida \$1.214.000
indirecto 0,10 (idem caso anterior) 121.400

3. Cañerías pozo y filtro

costo partida material \$222.000
indirecto 50% 111.000

4. Cañerías asbesto cemento (impulsión)

costo partida material \$137.500
indirecto 38% 52.250

5. Cañerías PVC (red distrib.)

costo partida material \$442.000
indirecto 34% 150.280

6. Accesorios bronce

costo partida material \$60.000
indirecto 80% 48.000

7. Cañerías y accesorios acero y hierro fundido

costo partida material \$343.000
indirecto 20% 68.600

8. Electro bomba

costo partida \$460.000	
indirecto 30%	138.000

9. Hormigón armado (tanque, estación bombeo, etc.)

costo partida \$690.000	
a) acero incidencia 30% \$207.000	
indirecto 50%	103.500
b) madera incidencia 8% \$ 55.200	
indirecto 90%	49.680

10. Conexiones domiciliarias

a) polietileno \$150.000	
indirecto 30%	45.000
b) medidores \$340.000	
indirecto 30%	102.000

1.089.710

$$\frac{1.089.710}{5.744.970} \times 100 = 18.98$$

No se consideró transporte por estar incluido en items.

B. Obra Típica Superficial - Los Médanos, Provincia San Juan

Presupuesto \$8.868.000 (Pesos)

1. Excavación y relleno con máquina
costo partida \$675.000
maquinaria 50%
indirecto 20% 67.500
2. Cañerías asbesto cemento
costo cañerías \$2.620.000
indirecto 38% 995.600
3. Cañerías y accesorios de heirro fundido
costo \$430.170
indirecto 20% 86.034
4. Hormigón armado
costo partida \$861.000
a) acero incidencia 30% \$258.300
indirecto 50% 129.150
b) madera incidencia 8% \$ 68.880
indirecto 90% 61.992
5. Electro bomba
costo partida \$150.000
indirecto 30% 45.000
6. Conexiones domiciliarias
a) polietileno
costo partida \$429.600
indirecto 30% 128.880
b) medidor
costo partida \$300.000
indirecto 30% 90.000

7. Transporte

costo partida \$250.000

a) vehículos 20% \$50.000
indirecto 30%

15.000

b) nafta y lubricantes 60% \$150.000
indirecto 22%

33.000

1.652.156

$$\frac{1.652.156}{8.868.000} \times 100 = 18.6$$

COSTOS DIRECTOS E INDIRECTOSSUB PROGRAMA URBANO1. Río Subterráneo

<u>Descripción</u>	<u>Importe US\$</u>	<u>Directos</u>		<u>Indirectos</u>	
		%	Monto	%	Monto
<u>A. Obra</u>					
1. Excavación abierta	436.000	-	--	3.5	15.260
2. Excavación tunel	8.374.000	-	--	5.0	418.700
3. Conducto hormigón	6.644.000	-	--	14.0	930.160
4. Camaras	1.190.000	-	--	15.0	178.500
5. Columna ventilación	1.700	-	--	15.0	255
6. Tapas de fierro	1.000	-	--	14.0	140
7. Marco y contratapa fierro	2.200	-	--	30.0	660
8. Compuerta madera	<u>51.100</u>	-	--	85.0	<u>43.435</u>
TOTAL	16.700.000				1.587.110

B. Contratista

1. Utilidad	10.0	1.670.000	
2. Personal externo	5.0	830.000	
3. Depreciación maquinaria (80%)			<u>712.890</u>
		<u>2.500.000</u>	<u>2.300.000</u>

<u>Descripción</u>	<u>Importe US\$</u>	<u>Directos</u>		<u>Indirectos</u>	
		%	Monto	%	Monto
<u>2. Estación Elevadora</u>					
1. Obras Civiles	2.577.000	-	--	11.0	283.000
2. Bombas y respuestos	2.762.000	-	--	40.0	1.104.800
3. Motores y repuestos	2.215.000	-	--	40.0	886.000
4. Cañerías y accesorios	498.000	-	--	50.0	249.000
5. Puente Grua	302.000	-	--	44.0	133.200
6. Pasarela, equipo dosador, balanza y otros	625.000	-	--	30.0	188.000
7. Transformador	238.000	-	--	30.0	71.000
8. Instalación eléctrica	<u>283.000</u>	-	--	30.0	<u>85.000</u>
TOTAL	9.500.000				3.000.000
<u>3. Líneas de impulsión</u>					
1. Cañería de hormigón pre-tensado	7.570.000	-	--	15.0	1.135.500
2. Cañería de cemento asbesto	215.000	-	--	14.0	29.750
3. Cañería de fierro fundido	30.000	-	--	14.0	4.200
4. Accesorios	81.000	-	--	15.0	12.150
5. Medidores maestros	<u>4.000</u>	-	--	85.0	<u>3.400</u>
TOTAL	7.900.000				1.185.000
<u>4. Redes matrices y relleno</u>					
1. Cañerías de hormigón pre-tensado	6.550.000	-	--	15.0	982.500
2. Cañerías de cemento asbesto	10.250.000	-	--	14.0	1.435.000
3. Valvulas y accesorios	400.000	-	--	15.0	60.000
4. Medidores	<u>5.000.000</u>	-	--	20.0	<u>1.002.500</u>
	22.200.000				<u>3.480.000</u>
<u>5. Medidores</u>	1.500.000	-	--	20.0	<u>3.000.000</u>

PROCEDIMIENTO DE LICITACIONES PARA LA ADQUISICION DE BIENES FINANCIADOS
CON RECURSOS DEL PRESTAMO DEL BANCO INTERAMERICANO DE DESARROLLO A LA
NACION ARGENTINA.

Toda adquisición o instalación de equipos a financiarse con los recursos del Préstamo del Banco se realizará conforme al siguiente procedimiento:

Artículo 1° Aplicación. Deberá utilizarse el sistema de licitación en todos los casos en que el valor de las adquisiciones y contrataciones exceda del equivalente de cien mil dólares de los Estados Unidos de América (US\$100.000).

Artículo 2° Ambito de licitaciones. Las licitaciones se limitarán a los países miembros del Banco y de aquellos países miembros del Fondo Monetario Internacional que sean elegibles conforme a las políticas del Banco al respecto.

Artículo 3° Modalidad de licitación pública internacional. Cuando para financiar total o parcialmente la adquisición de bienes y servicios indicados en el artículo 1°deban utilizarse dólares o monedas de otros países distintos a la Argentina y siempre que el valor de las adquisiciones supere montos determinados en el artículo 1°; el procedimiento de licitación deberá tener el carácter internacional.

Artículo 4° Llamado a licitación . El llamado a licitación deberá indicar como mínimo el ámbito de la licitación, el organismo licitante, el presupuesto, la prestación que motiva el llamado, el lugar, hora y fecha en que pueden obtenerse las bases de licitación; el funcionario ante el cual y el lugar, hora y fecha en que deban presentarse las ofertas, el importe de la garantía, la fuente de financiamiento y las restricciones sobre la elegibilidad de las ofertas. En los casos de ejecución de obras debe indicarse además el sitio de la obra. Dicho llamado deberá ser aprobado por el ejecutor y el Banco antes de que se publique.

Artículo 5° Publicidad. Los llamados a licitación pública se publicarán, como mínimo, en dos diarios de los de mayor circulación en la Capital Federal y cuando corresponda en los boletines oficiales de la Nación y Provincias, según corresponda,mediando cuando menos, un intervalo de 3 días entre cada publicación del correspondiente aviso de licitaciones, en el que se indicará como plazo para el recibo de las ofertas el mínimo de 30 días corridos, contados a partir de la fecha de la última publicación. En casos de licitaciones que excedan del equivalente de US\$500.000 el Banco podrá requerir un plazo mayor,que no será mayor de 90 días. En casos especiales y debidamente justificados el Prestatario y el Banco podrán acordar la reducción de estos plazos.

Artículo 6° Avisos a Embajadas. Simultáneamente con la publicación de los llamados a licitación pública, se cursarán invitaciones a cada una de las Embajadas, ó en su defecto los Consulados de los países elegibles según la fuente del financiamiento, que tuvieran representación acreditada ante el Gobierno de la Nación Argentina. Las invitaciones deberán contener los mismos datos que se publiquen en los mencionados avisos de convocatoria.

Artículo 7° Pliego de condiciones. El pliego de condiciones, que incluye los planos y especificaciones de la licitación, será redactado por el ejecutor y se entregará a los postores elegibles, una vez que se haya aceptado por el ejecutor y el Banco antes de cada licitación. Las modificaciones a dichos pliegos serán aceptadas en la misma forma. Las consultas que evacúe el ejecutor serán puestas en conocimiento de todos los posibles oferentes y del Banco y no producirán efecto suspensivo sobre el plazo de presentación de ofertas.

Artículo 8° Requisitos para presentar ofertas. Además del requisito de elegibilidad de los bienes y servicios, los proponentes deberán estar inscritos en el Registro de Proveedores del Estado ó en el Registro Nacional ó Provincial de Constructores de Obras Públicas, según sea el caso, salvo que se trate de firmas establecidas en el extranjero sin sucursales ó representaciones en la Argentina, en cuyo caso bastará con la presentación al respectivo Registro y su correspondiente aceptación por parte de éste, la que no podrá ser rechazada sino por causales fundadas y evidentes.

Artículo 9° Apertura de las ofertas. En el lugar, día y hora determinados para celebrar el acto, se abrirán las ofertas en presencia de los funcionarios que se designen para ello y de los interesados en asistir. El acta correspondiente será suscrita también por los oferentes que desearan hacerlo.

Artículo 10° Análisis de las ofertas y preselección. Presentadas las ofertas, el ejecutor procederá a elaborar el cuadro comparativo de las mismas con los dictámenes correspondientes, los que serán enviados al Banco para su conformidad, antes de que sea comunicado el resultado a la firma así preseleccionada, junto con la indicación de la oferta que considere dicho organismo como la más conveniente y las razones que tiene para llegar a dicha conclusión.

Artículo 11° Modificación de la selección. Si se decidiere adjudicar la licitación a un oferente diferente al recomendado a la que hubiere dado su conformidad el Banco, o se introdujeran otros cambios sustanciales en

el informe, se enviarán nuevamente al Banco los documentos pertinentes para su conformidad, procediendo nuevamente de acuerdo a lo establecido en el artículo anterior.

Artículo 12° Adjudicación. Adjudicada la licitación al oferente seleccionado de acuerdo con lo establecido en el artículo 11° anterior, el ejecutor enviará al Banco el proyecto de contrato que se propone firmar con el adjudicatario para su aceptación y posterior ratificación según se trate de la aplicación de recursos del préstamo ó de recursos de contrapartida local.

Artículo 13° Licitación desierta. El ejecutor declarará desierta la licitación en los casos en que no pueda adjudicarse el contrato por falta de oferentes. Asimismo, se declarará desierta la licitación en los casos en que no se presente oferta alguna con precio aceptable ó ajustada a las condiciones del pliego de condiciones. En ambas situaciones el ejecutor deberá oír al Banco antes de pronunciarse al efecto. En todo caso en que se declare desierta la licitación se efectuará una segunda, salvo que el ejecutor y el Banco convengan en otra forma de proceder para la selección del adjudicatario.

Artículo 14° Rescisiones. Cuando un contrato haya sido rescindido por falta de cumplimiento del contratista, ya sea que se trate de la calidad de la obra ó del plazo de la ejecución, ó de la calidad ó plazo de entrega de la maquinaria, equipo ú otros bienes, ú otras causales establecidas en el respectivo contrato, el ejecutor y el Banco deberán acordar el curso a tomar frente a esta situación.

Artículo 15° Organismo Ejecutor. Sin perjuicio de las atribuciones legales que le correspondan al Ministerio de Economía, será el ejecutor la autoridad competente para efectuar llamados a licitación para la adquisición de bienes así como para la contratación de obras.

Artículo 16° Márgenes de Preferencia. En la evaluación de las ofertas que se reciban como consecuencia de una licitación pública internacional para la adquisición de bienes, el prestatario podrá aplicar un margen de preferencia de hasta el 15% en favor de los bienes de origen nacional y, además, podrá aplicar, cuando no se hubiere adjudicado la licitación a un proveedor nacional, un margen de preferencia subregional ó regional, según sea el caso, cuando los bienes provengan de países miembros de un convenio de integración del cual también sea parte el país prestatario.

En la aplicación de los márgenes de preferencia nacional, subregional ó regional, se estará a lo que dispongan las políticas del Banco al respecto.

Artículo 17° Precalificación. En los casos de ejecución de obras que formen parte del proyecto financiado con recursos del Banco se efectuará la precalificación de las firmas proponentes con referencia a su experiencia e idoneidad técnica y financiera. El Banco y el Ejecutor podrán acor-

dar la exención a la presente norma. Las aplicaciones del sistema de precalificación podrán regularse por el procedimiento de precalificación simultánea a la oferta, mediante el mecanismo del "doble sobre" en los casos de obras de mediana importancia ó de urgencia calificada por el Banco y el Ejecutor. Los llamados a la precalificación se publicarán en la forma indicada en el artículo 5° por un período no menor de 30 días y contendrán la información indicada en el artículo 4° en lo que corresponda. Los formularios y las bases para la precalificación serán acordados entre el ejecutor y el Banco previo a la publicación del llamado a precalificación. Con los datos proporcionados por los interesados, el ejecutor verificará, estudiará y analizará el informe de cada uno de ellos y determinará como elegibles solamente a aquellos que sean capacitados técnica, financiera, legal y administrativamente para ejecutar las obras de acuerdo con las especificaciones requeridas y en el plazo fijado. Copia de los análisis hechos y las listas de las firmas se presentarán a la consideración del Banco, junto con los criterios generales que se utilizaron para la selección de los contratistas. En estos casos, la licitación de las obras se efectuará únicamente entre las firmas precalificadas y la adjudicación se hará a la oferta de precio más conveniente, prescindiendo de los factores de experiencia e idoneidad técnica y financiera ya evaluados en la precalificación, salvo para considerar hechos sobrevinientes con posterioridad a la presentación de los datos de la respectiva precalificación. En el llamado a licitación, publicidad y demás aspectos se seguirá lo establecido en el presente procedimiento.

Artículo 18° Pronunciamiento oportuno del Banco. El Banco deberá pronunciarse sobre los documentos que se sometan a su consideración en forma oportuna, esto es, no deberá dilatarse más de 45 días a partir del momento en que la documentación correspondiente haya llegado a su poder y evitar retrasar la marcha normal del proyecto permitiendo el cumplimiento de los calendarios de ejecución oportunamente programados. El silencio del Banco durante dicho período podrá ser considerado por por el ejecutor como aceptación de los documentos correspondientes.

Artículo 19° Alcance del presente Procedimiento. El presente instrumento es complementario de lo que disponen las respectivas cláusulas del Contrato de Préstamo de manera que en el caso de oposición ó pugna entre unas y otras, prevalecerán las disposiciones del Contrato de Préstamo.

Artículo 20° Origen de los bienes. El origen de los materiales y/o equipo a adquirirse, es el país en el cual el material y/o equipo ha sido extraído, cultivado ó producido ya sea por manufactura, procesamiento ó ensamble. El origen del artículo "producido" necesariamente es del país en el cual, como resultado de dicho procesamiento, manufactura ó ensamble, resulta en otro artículo, comercialmente reconocido, que difiere sustancialmente en sus características básicas en su propósito ó finalidad, de cualquiera de sus componentes importados. La nacionalidad de la firma que produce o vende los bienes o el equipo es inmaterial para determinar

el origen de tales bienes y equipos.

Artículo 21° Criterios básicos. La aplicación de los anteriores procedimientos se basará en los principios de oposición, publicidad e igualdad entre oferentes.

Cálculo Tarifas Subprograma Urbano

A. Bases

1. El servicio de la deuda del nuevo proyecto se calcula de acuerdo a las condiciones financieras fijadas en esta operación.
2. El abastecimiento de agua provendrá un 90% de aguas superficiales de la planta de tratamiento San Martín y un 10% de los pozos. Como resultado de esta mezcla los costos variables: a) sustancias químicas y energía (75%) y b) mantenimiento, tienen un costo de US\$0,04 por metro cúbico.
3. Los costos de personal representan actualmente US\$200.000 por año y serían ampliados a US\$400.000 a partir del 5° año.
4. Se incluye la depreciación de los nuevos activos que se incorporarían al proyecto, calculados en un 2% anual.

B. Cálculo Tarifa Futura

1. En el cuadro anexo se aprecia el costo que se obtendría por metro cúbico que tiene un promedio de US\$0,12.
2. La empresa ha proyectado un crecimiento de conexiones tal como se muestra en el cuadro anexo. Relacionando el número de conexiones con la población que se obtendrá en cada año se obtiene una densidad de 6,7 habitantes por vivienda. Esta densidad aparentemente alta se debe a la presencia de viviendas tipo multifamiliar.
3. La demanda promedio por conexión mensual puede estimarse en:

$$6,7 \times 0,350 \times 30 = 70 \text{ m}^3$$

4. El costo promedio por conexión incluido los gastos de explotación, servicio de la deuda y depreciación sería:
 - a) mensual = $70 \times 0,12 = 8,40$
 - b) anual = $8,40 \times 12 = 100,8$
5. Aceptando el costo anterior como la tarifa se tendría la siguiente proyección de ingresos y costos:

(US\$ miles)

	I	II	III	IV	V	VI	VII	VIII	IX	X
I. Costos	1.681	1.681	1.681	1.681	9.183	10.259	10.137	10.014	9.934	9.854
II. Ingresos										
1. Número conexio- nes	44.000	44.000	44.000	44.000	100.000	100.700	101.400	102.000	106.600	111.209
2. Ingresos	1.353	1.353	1.353	1.353	10.080	10.151	10.221	10.282	10.745	11.209

6. La información anterior sirve de base para el cálculo de la proyección financiera del proyecto que se presenta en la sección

COSTO DEL METRO CUBICO

Nº	Año	Demanda miles m³	Inversión miles US\$	miles US\$ por año				Costo m³
				Servicio deuda	Operación y manteni- miento	Depreciación	Administración	
							Total	
1.	1978	37,047	10705	-	1481	-	200	0.046
2.	1979	37,047	33045	-	1481	-	200	0.046
3.	1980	37,047	33150	-	1481	-	200	0.046
4.	1981	37,047	23100	-	1481	-	200	0.046
5.	1982(70)	84,635	-	3398	3385	2000	400	0.108
6.	1983(70)	84,955	-	4461	3398	2000	400	0.121
7.	1984(70)	85,275	-	4326	3411	2000	400	0.119
8.	1985(70)	85,593	-	4190	3424	2000	400	0.117
9.	1986(68)	86,998	-	4054	3480	2000	400	0.114
10.	1987(66)	88,403	-	3918	3536	2000	400	0.111
								Promedio
								0.12

Cálculo Tarifas Subprograma RuralA. Datos Básicos

1. Población al término período de construcción	400.000 hmts.
2. Población que sería atendida por fuentes públicas	16.683
3. Población total por conexiones domiciliarias	383.317
4. Población servida al término de la construcción (70%)	268.322
5. Número total de conexiones	60.000
a) Con medidor 75%	45.000
b) Con regulador 25%	15.000
6. Población total dentro de 10 años	487.000
7. Población a ser servida con 90% cobertura	438.300
8. Número total de conexiones	97.400
a) Con medidor 75%	73.050
b) Con regulador 25%	24.360

B. Pronóstico de Conexiones

	A ñ o s									
I. Medidor	I	II	III	IV	V	VI	VII	VIII	IX	X
a. Inmediato	--	4.500	18.000	40.500	45.000					
b. Futuro	--	--	--	--	4.675	4.675	4.675	4.675	4.675	4.675
	--	4.500	18.000	40.500	49.675	54.350	59.025	63.700	68.375	73.050

II. Regulador

a. Inmediato	--	1.500	6.000	13.500	15.000					
b. Futuro	--	--	--	--	1.560	1.560	1.560	1.560	1.560	1.560
	--	1.500	6.000	13.500	16.560	18.120	19.680	21.240	22.800	24.360

C. Costo del Agua

Para obtener el costo promedio de agua por conexión que servirá de base para las proyecciones financieras se han estudiado 4 casos diferentes de los

cuales se obtendrá un promedio ponderado y representativo para todo el sub-programa.

I. Acueductos Regionales

Caso N° 1 - El Abanico

Abastecimiento: Superficial

Población Actual: 17.133 hbts.

a) Costo directo US\$527.052

b) Conexiones:

705 conexiones	1.000 lts/día =	21.150
797 conexiones	800 lts/día =	19.128
358 conexiones	500 lts/día =	5.370
<u>1.289 conexiones</u>	<u>300 lts/día =</u>	<u>11.601</u>
3.149		57.249 m3/mes

c) Costos:

US\$ mensual

i. servicio deuda BID =	2.460
ii. depreciación (2% anual) =	878
iii. administración =	180
iv. operación (energía y sustancias químicas) =	178
v. mantenimiento =	<u>314</u>
	5.550

$$\text{Costo del m}^3 = \frac{5.550}{57.249} = \$0,10$$

Caso No. 2 - Albandon-Angaco

Abastecimiento: Subterráneo

Población actual: 22.418 hbts.

a) Costo directo US\$3.455.761

b) Conexiones:

2.125 conexiones	1.000 lts/día =	63.750
1.373 conexiones	800 lts/día =	32.952
750 conexiones	500 lts/día =	11.250
<u>594 conexiones</u>	<u>300 lts/día =</u>	<u>5.346</u>
4.842		113.298 m3/mes

c) Costos:	<u>US\$ mensual</u>
i. servicio deuda BID =	13.823
ii. depreciación (2%) =	5.760
iii. administración =	127
iv. operación (energía y cloro) =	183
v. mantenimiento =	<u>57</u>
	<u>19.960</u>

$$\text{Costo del m}^3 = \frac{19.960}{113.298} = \text{US\$0,18}$$

Promedio ponderado:

sistema pozo .40 x 0,18 =	0,072
sistema superficial 0,60 x 0,10 =	<u>0,060</u>
	<u>0,132/m³</u>

II. Sistemas individuales

Caso No. 1 - Guandacol

Abastecimiento: Superficial
Población actual: 1.204 hmts.

a) Costo directo US\$104.300

b) Conexiones:

177 conexiones 1.000 lts/día =	5.310
<u>10 conexiones 2.000 lts/día =</u>	<u>600</u>
187	<u>5.910 m³/mes</u>

c) Costos:	<u>US\$ mensual</u>
i. servicio de la deuda BID =	348
ii. depreciación (2%) =	174
iii. administración =	54
iv. operación (energía y sustancias químicas) =	123
v. mantenimiento =	<u>116</u>
	<u>815</u>

$$\text{Costo del m}^3 = \frac{815}{5.910} = \$0,14$$

Caso No. 2 - Arroyo Dulce

Abastecimiento: Subterráneo
Población actual: 1.090 hbts.

a) Costo directo US\$132.812

b) Conexiones (con medidor 200 lts/día):

$$200 \times 3,4 \times 0,2 \times 30 = 4.080 \text{ m}^3/\text{mes}$$

c) Costos: US\$ mensual

i. servicio de la deuda BID =	443
ii. depreciación (2%) =	221
iii. administración =	13
iv. operación (energía y cloro) =	178
v. mantenimiento =	71
	<hr/>
	926

$$\text{Costo del m}^3 = \frac{926}{4.080} = \text{US\$}0,22$$

Promedio ponderado:

sistema pozo = $0,52 \times 0,22 =$	0,114
sistema superficial = $0,48 \times 0,14 =$	<hr/> 0,067
	<hr/> \$0,181

Costo promedio ponderado para el programa:

Acueductos regionales $0,34 \times 0,132 =$	0,04
sistemas individuales $0,66 \times 0,18 =$	<hr/> 0,12
	<hr/> \$0,16/m ³

D. Costo Mensual por Conexión

- a) con medidor = $30 \text{ m}^3 \times 0,16 = \$4,8$
b) con regulador = $15 \text{ m}^3 \times 0,16 = \$2,4$

E. Tarifas

Con base a los costos obtenidos anteriormente se han establecido las siguientes tarifas para todo el programa:

- a) tarifa mensual servicio con medidor consumo $30 \text{ m}^3 = 5,0$
b) tarifa mensual servicio con regulador consumo $15 \text{ m}^3 = 2,5$

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ARG-ES

ACUEDUCTOS RURALES
PROYECCION-ESTADO DE RESULTADOS
(US\$ M)

LINE NO	LINE NAME	1	2	3	4	5	6	7	8	9	10	TOTAL
CANTIDADES												
301.0	CONEXIONES A	4500	18000	40500	49675	54350	59025	63700	68375	73050		
303.0	CONEXIONES B	1500	6000	13500	16560	18120	19680	21240	22800	24360		
TARIFAS												
311.0	POR CONEX.A	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	
313.0	POR CONEX.B	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	
INGRESOS												
321.0	A	270	1080	2430	2981	3261	3542	3822	4103	4383	25871	
323.0	B	45	180	405	497	544	590	637	684	731	4313	
330.0	TOTAL INGRESOS	315	1260	2835	3477	3805	4132	4459	4787	5114	30183	
EGRESOS												
341.0	OPER. Y MANT.	76	302	680	835	913	992	1070	1149	1227	7244	
344.0	GRAL. Y ADMON.	19	76	170	209	209	209	209	209	209	1519	
350.0	DEPRECIACION	335	871	1273	1340	1340	1340	1340	1340	1340	10519	
352.0	PROV.CTAS.INCOBR	6	25	56	69	76	82	89	95	102	600	
359.0	TOT.GTOS.EXPLOT.	436	1274	2179	2453	2538	2623	2703	2793	2878	19882	
360.0	ING.NETO EXPLOT	-121	-14	656	1024	1267	1509	1751	1994	2236	10301	
364.0	GTOS.FINANCIEROS				1401	1341	1261	1182	1102	1023	7310	
370.0	UTIL(PERD)NETA	-121	-14	656	-377	-74	248	569	892	1213	2991	

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ARG-ES

ACUEDUCTOS RURALES
PROYECCION
ORIGEN Y APLICACION DE FONDOS

LINE NO	LINE NAME	1	2	3	4	5	6	7	8	9	10	TOTAL
ORIGEN												
FUENTES INTERNAS												
401.0	ING.NETO EXPLOT.	0	-121	-14	656	1024	1267	1509	1751	1994	2236	10301
404.0	DEPRECIACION	0	335	871	1273	1340	1340	1340	1340	1340	1340	10519
406.0	TOTAL FUENT.INT.	0	214	857	1929	2364	2607	2849	3091	3334	3576	20820
FUENTES EXTERNAS												
408.0	APORTES CAPITAL	9487	9809	8349	2355	0	0	0	0	0	0	30000
418.0	PTMO.BID EN EST.	10323	11721	10901	4055	0	0	0	0	0	0	37000
422.0	TOT.FTES.EXTER	19810	21530	19250	6410	0	0	0	0	0	0	67000
426.0	TOTAL ORIGEN	19810	21744	20107	8339	2364	2607	2849	3091	3334	3576	87820
APLICACIONES												
SERVICIO DE DEUDA												
428.0	INT.A RESULTAD.	0	0	0	0	1401	1341	1261	1182	1102	1023	7310
430.0	AMOR.PTM.BID EST	0	0	0	0	881	1761	1761	1761	1761	1761	9686
432.0	TOT.SERV.DEUDA	0	0	0	0	2282	3102	3022	2943	2863	2784	16996
COSTS.CONSTRUC												
435.0	PROYECTO EN EST.	19445	20734	18043	4989	0	0	0	0	0	0	63210
436.0	INT.DUR.CONST.	365	796	1207	1422	0	0	0	0	0	0	3790
440.0	TOT.COSTO CONST	19810	21530	19250	6410	0	0	0	0	0	0	67000
450.0	INC (DIS)CAP.TRAB	10	80	229	379	183	71	73	72	73	71	1244
452.0	TOT.APLICACIONES	19820	21610	19479	6789	2465	3173	3095	3015	2936	2855	85240
454.0	SUP/DEF ANUAL	-10	134	628	1550	-101	-567	-247	76	397	721	2581
460.0	SUP/DEF ACUMUL	-10	124	752	2301	2200	1634	1387	1463	1860	2581	0

JUNIO 1977

ES-ARG

LA GUAYANA
PROYECCION A MEDIO PLAZO DE RESULTADOS
(US\$ M)

LINE NO	1	2	3	4	5	6	7	8	9	10	TOTAL
LINE NAME											
301.0 CONEXIONES AGUA	44000	44000	44000	44000	100000	100700	101400	102000	106600	111200	
TARIFAS											
311.0 POR CONEX.AGUA	30.02	38.94	50.51	65.53	85.00*	85.00	85.00	85.00	85.00	85.00	
INGRESOS											
321.0 AGUA	1321	1713	2222	2883	8500	8560	8619	8670	9061	9452	61002
EGRESOS											
341.0 OPER. Y MANT.	1481	1481	1481	1481	3385	3393	3411	3424	3480	3536	26558
344.0 GRAL. Y ADMON.	200	200	200	200	400	400	400	400	400	400	3200
350.0 DEPRECIACION					2101	2101	2101	2101	2101	2101	12606
352.0 PROV.CTAS.INCOBR	26	34	44	57	170	171	172	173	181	189	1217
359.0 TOT.GTOS.EXPLOIT.	1707	1715	1725	1738	6056	6070	6084	6098	6162	6226	43581
360.0 ING.NETO EXPLOT	-386	-2	497	1145	2444	2490	2535	2572	2899	3226	17421
364.0 GTOS.FINANCIEROS					5010	4779	4508	4237	3964	3693	26191
370.0 UTIL(PERD)NETA	-386	-2	497	1145	-2565	-2290	-1973	-1665	-1065	-467	-8770

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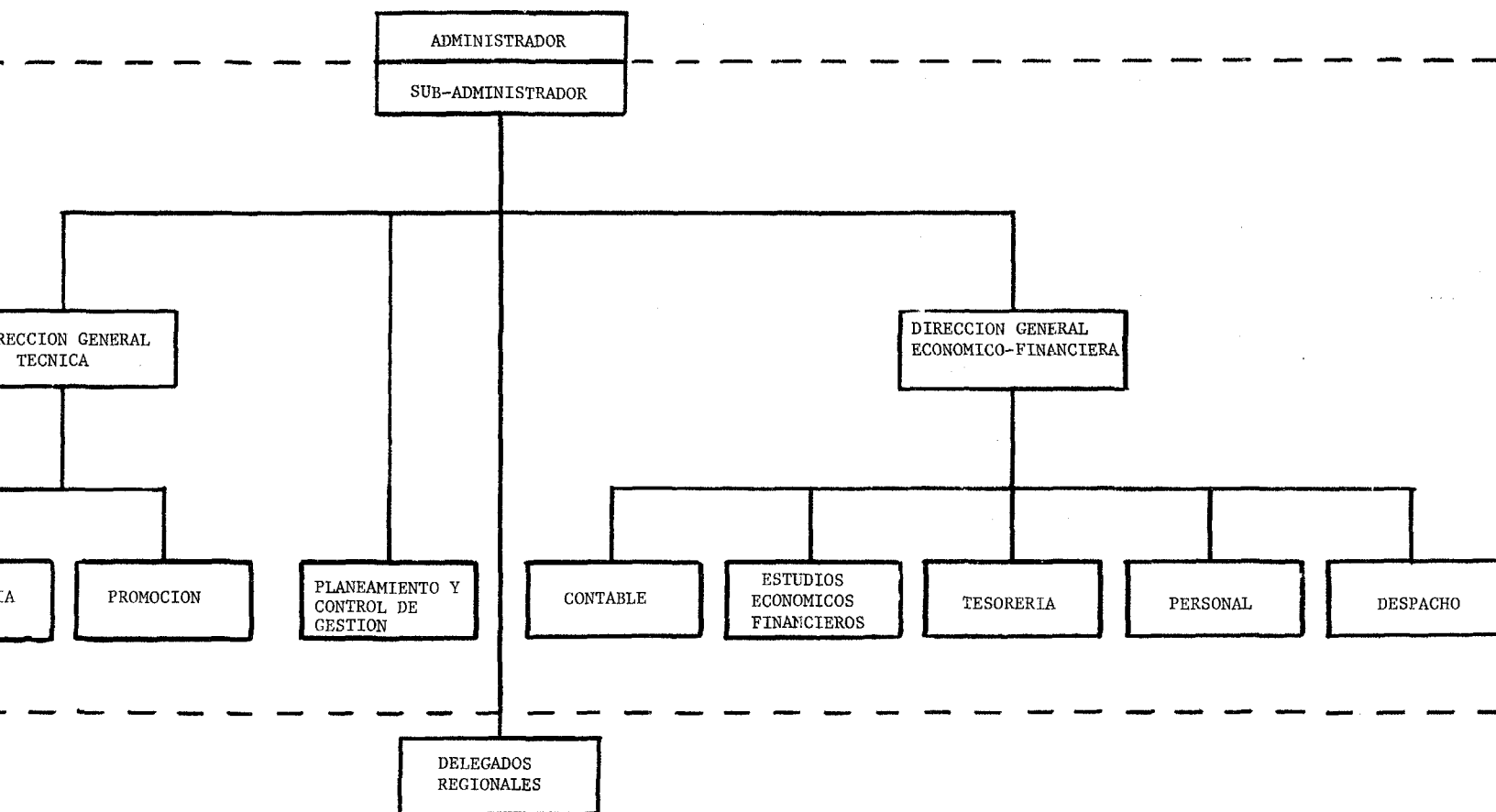
ES-A

LA PATATEZA
PROYECCION
ORIGEN Y APLICACION DE FONDOS

LINE NO	LINE NAME	1	2	3	4	5	6	7	8	9	10	TOTAL
ORIGEN												
FUENTES INTERIAS												
401.0	ING. NETO EXPLOR.	-386	-2	497	1145	2444	2490	2535	2572	2894	3226	17421
404.0	DEPRECIACION	0	0	0	0	2101	2101	2101	2101	2101	2101	12606
406.0	TOTAL FUENT. INT.	-386	-2	497	1145	4545	4591	4636	4673	5000	5327	30027
FUENTES EXTERIAS												
408.0	APORTES CAPITAL	3815	7598	7807	5780	0	0	0	0	0	0	25000
416.0	PTMOS. EN GESTION	3086	11455	11526	7933	0	0	0	0	0	0	34000
418.0	PTMO. BID EN EST.	4008	14770	15473	11749	0	0	0	0	0	0	46000
422.0	TOT. FIES. EXTER	10909	33823	34806	25462	0	0	0	0	0	0	105000
426.0	TOTAL ORIGEN	10523	33821	35303	26607	4545	4591	4636	4673	5000	5327	135027
APLICACIONES												
SERVICIO DE DEUDA												
428.0	INT. A RESULTA).	0	0	0	0	5010	4779	4508	4237	3964	3693	26191
430.0	AMOR. PTM. BID EST.	0	0	0	0	1155	2330	2330	2330	2330	2330	12815
431.0	AMORT. OTROS PTMO	0	0	0	0	829	1658	1658	1658	1658	1658	9119
432.0	TOT. SERV. DEUDA	0	0	0	0	7004	8767	8496	8225	7952	7681	48125
COSTS. CONSTRUCC.												
435.0	PROYECTO EN EST.	10497	32350	31687	20901	0	0	0	0	0	0	95525
436.0	INT. DUR. CONST.	412	1473	3119	4471	0	0	0	0	0	0	9475
440.0	TOT. COSTO CONST	10909	33823	34806	25462	0	0	0	0	0	0	105000
450.0	INC(DIS)CAP. TRAB	508	90	117	152	1551	15	15	14	08	97	2656
452.0	TOT. APLICACIONES	11417	33913	34923	25614	8555	8782	8511	8239	8350	7778	155781
454.0	SUP/DEF ANUAL	-894	-92	380	993	-4010	-4192	-3875	-3565	-3050	-2451	-20755
460.0	SUP/DEF ACUMUL	-894	-986	-605	388	-3621	-7813	-11688	-15255	-18304	-20755	0

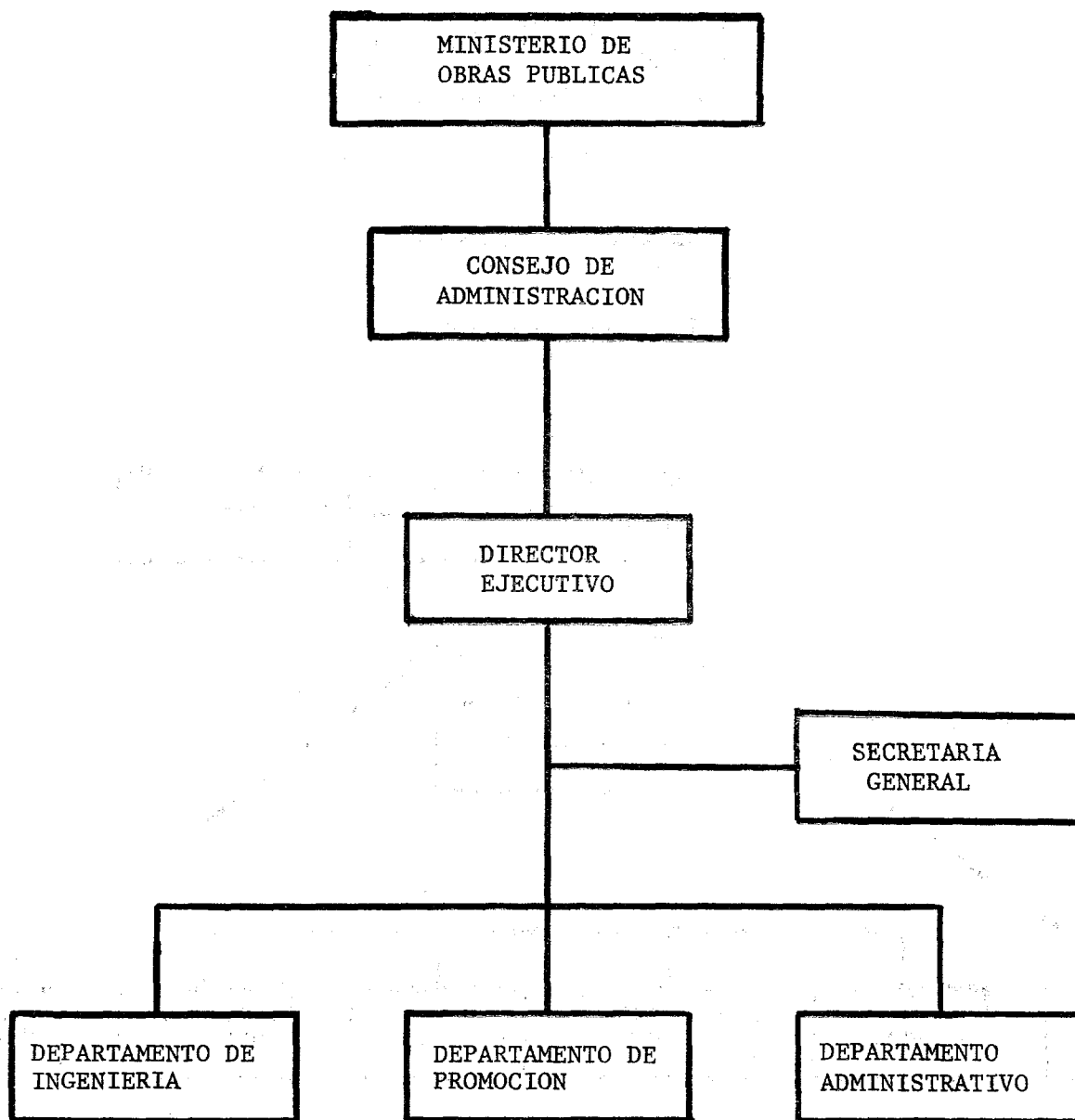
SERVICIO NACIONAL DE AGUA POTABLE Y SANEAMIENTO RURAL

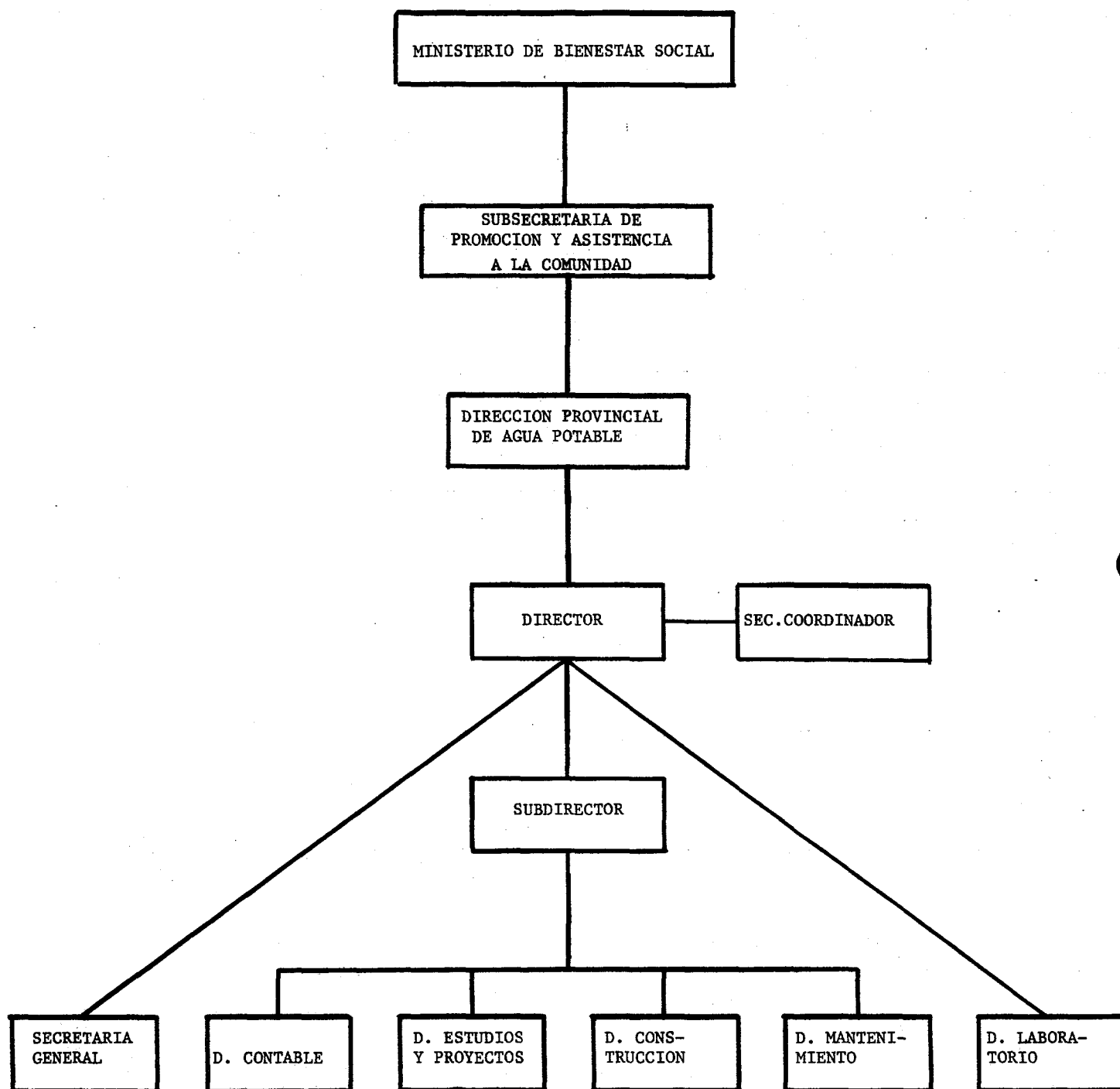
ORGANIGRAMA BASICO



SERVICIO PROVINCIAL DE BUENOS AIRES

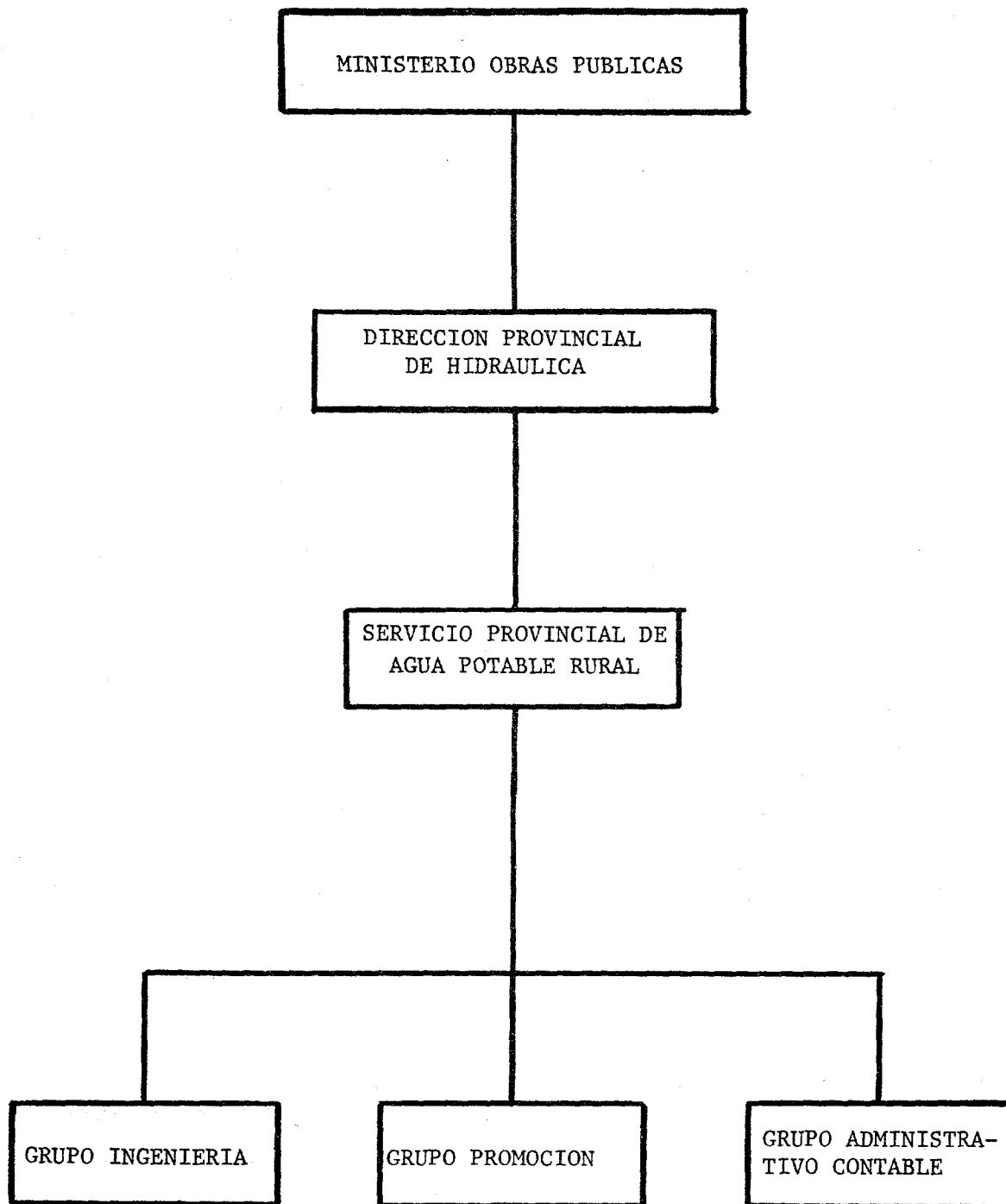
ORGANIGRAMA



SERVICIO PROVINCIAL DE CATAMARCAORGANIGRAMA

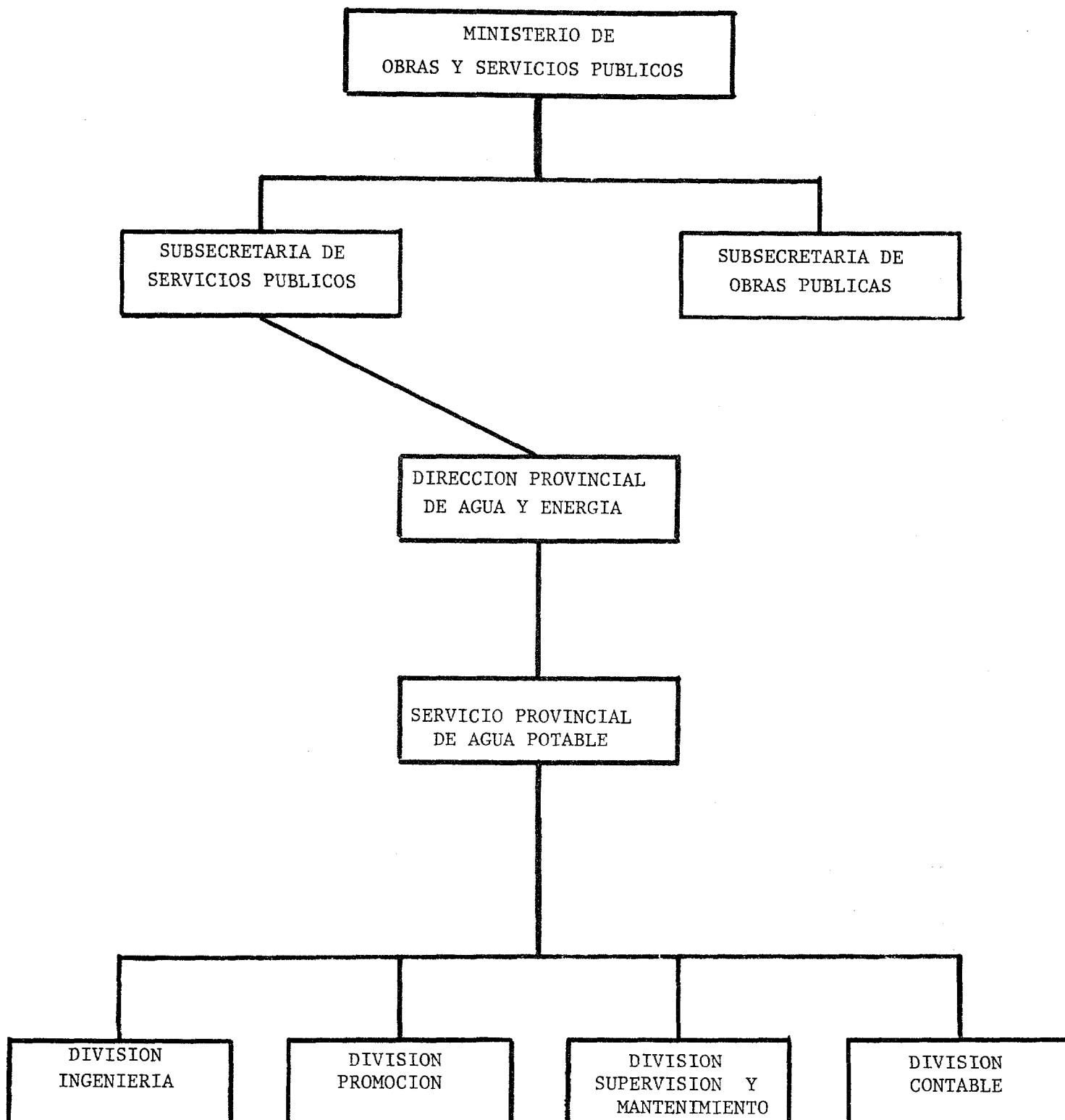
SERVICIO PROVINCIAL DE CORDOBA

ORGANIGRAMA



SERVICIO PROVINCIAL DE CORRIENTES

ORGANIGRAMA



CNASBALANCES GENERALESServicios Bancarios

	Junio 30						Dic. 31	
	1974		1975		1976		1976	
	ARG.\$MM	%	ARG.\$MM	%	ARG.\$MM	%	ARG.\$MM	%
<u>ACTIVO</u>								
I. Disponibilidades	609	8	742	7	2.327	11	5.192	8
II. Inversiones								
Valores Mobiliarios ^{1/}	330	5	413	4	880	4	22.501	35
Préstamos	6.184	83	8.447	82	14.950	69	32.326	51
III. Créditos Diversos	208	3	340	3	1.308	6	1.564	3
IV. Bienes de uso-neto	83	1	184	2	936	4	898	1
V. Transitorio y Car- gos Diferidos	37	-	220	2	1.314	6	1.273	2
	7.451	100	10.346	100	21.715	100	63.754	100
	=====		=====		=====		=====	
<u>PASIVO</u>								
I. Obligaciones con B.C.R.A.	5.778	78	7.843	76	13.974	64	31.511	49
II. Otras Obligaciones	57	1	251	2	1.846	9	1.068	2
III. Provisiones y Prev. Espec.	640	8	994	10	2.338	11	402	1
IV. Otros rubros	183	2	379	4	1.835	8	8.406	13
V. Patrimonio								
Reservas	709	10	811	8	1.621	8	1.653	3
Ganancias y Pérdidas	84	1	68	-	101	-	(302)	(1)
Revaluación Valores Mobiliarios	-	-	-	-	-	-	21.016	33
	7.451	100	10.346	100	21.715	100	63.754	100
	=====		=====		=====		=====	

^{1/} Los valores mobiliarios están contabilizados al valor de adquisición, sin embargo, en este cuadro se presentan, a diciembre 31, 1976, al valor cotizado en la bolsa de valores.

CNAS
Balance General Servicios Bancarios, de Seguros y Consolidado
(Millones de pesos Argentinos)
Junio 30, 1976

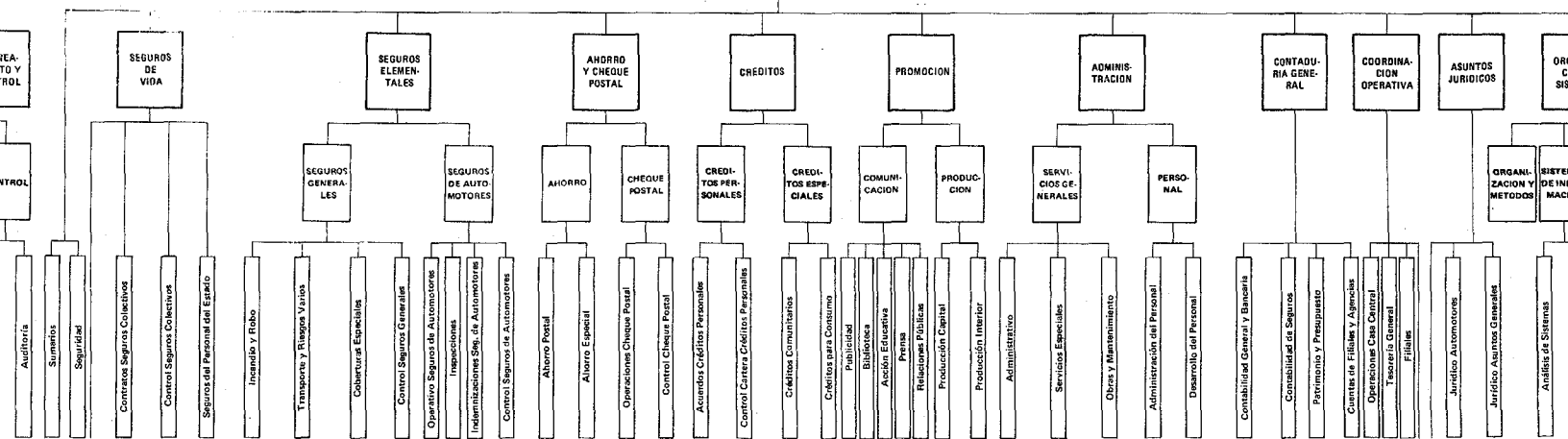
	<u>Bancarios</u>	<u>Seguros</u>	<u>Consolidado</u>
<u>ACTIVO</u>			
I. Disponibilidades	2.237	96	2.423
II. Inversiones	15.830	4.496	20.326
III. Primas a cobrar		6.190	6.190
IV. Créditos Diversos	1.308	961	2.269
V. Bienes de Uso	936		936
VI. Activo Transitorio y Gastos Diferidos	1.314	87	1.401
	<u>21.715</u>	<u>11.830</u>	<u>33.545</u>
	=====	=====	=====
<u>PASIVO</u>			
VII. Depósitos		-	-
VIII. Obligaciones con B.C.R.A.	13.974	-	13.974
IX. Otras obligaciones	1.846	-	1.846
X. Provisiones y Prev.Espec.	2.338	-	2.338
XI. Otros rubros del pasivo	1.835	-	1.835
XII. Fondos con Destino Específico	-	1.334	1.334
XIII. Compromisos de seguros	-	5.672	5.672
XIV. Cuentas de regularización	-	1.587	1.587
XV. <u>Patrimonio</u>			
Reservas	1.621	2.499	4.120
Ganacias y Pérdidas	101	738	839
	<u>21.715</u>	<u>11.830</u>	<u>33.545</u>
	=====	=====	=====



CAJA NACIONAL DE AHORRO Y SEGURO

ESTRUCTURA ORGANICA PROVISIONAL

(Resolución No 1588 - 976)

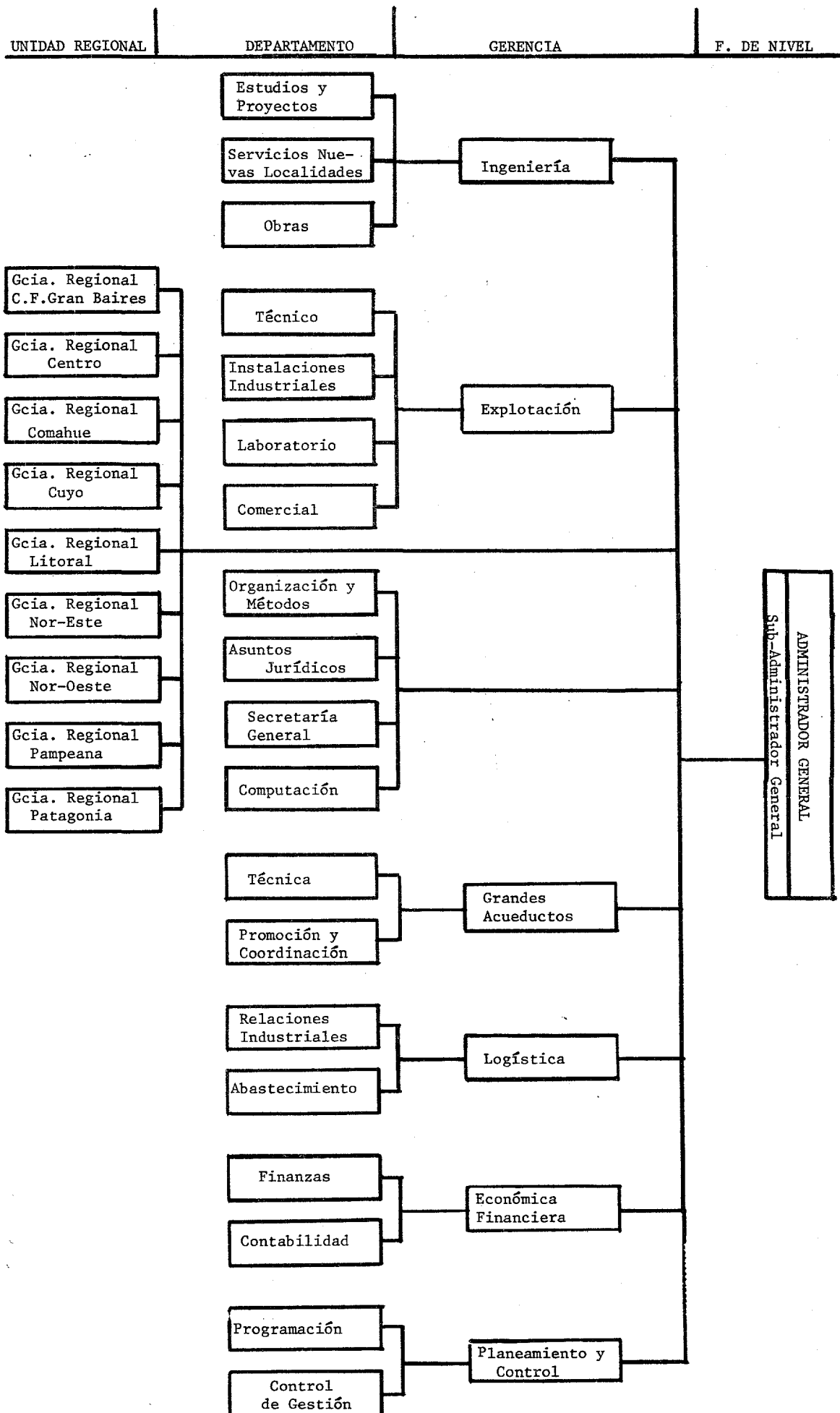


INVERSIONS

1974		1975		1976		Dic.31, 1976	
ARG.\$MM	%	ARG.\$MM	%	ARG.\$MM	%	ARG.\$MM	%
2.806	45	4.628	55	7.959	53	20.070	62
2.796	45	4.622	55	7.851	53	19.911	62
10	-	6	-	108	-	159	-
3.378	55	3.819	45	6.991	47	12.256	38
919	15	1.890	22	3.441	43	8.256	26
411	7	637	8	1.913	13	2.793	9
779	13	71	1	387	3	452	1
1.269	20	1.221	14	1.250	8	755	2
6.184	100	8.447	100	14.950	100	32.326	100
=====		=====		=====		=====	
36	11	36	9	36	4	36	-
294	89	377	91	844	96	1.449	7
-	-	-	-	-	-	21.016	93
330	100	413	100	880	100	22.501	100

SERVICIOS BANCARIOS

	Año Terminado Junio 30,						Semestre Terminado Dic.31,19
	1974		1975		1976		
	ARG.\$MM	%	ARG.\$MM	%	ARG.\$MM	%	ARG.\$MM
esos							
Renta de Inversiones	964	83	1.394	84	4.350	89	4.684
Otras Utilidades Operativas	174	15	243	15	451	9	155
Utilidades Diversas	19	2	15	1	111	2	770
	1.157	100	1.652	100	4.912	100	5.609
	=====		=====		=====		=====
os							
Cargas Financieras	808	70	1.080	65	2.689	55	4.295
Gastos Administración	201	17	406	25	1.659	34	1.478
Diversos	65	6	98	6	463	9	138
	1.074		1.584		4.811		5.911
(Utilidad pérdida)	83	7	68	4	101	2	(302)
	1.157	100	1.652	100	4.912	100	5.609
	=====		=====		=====		=====



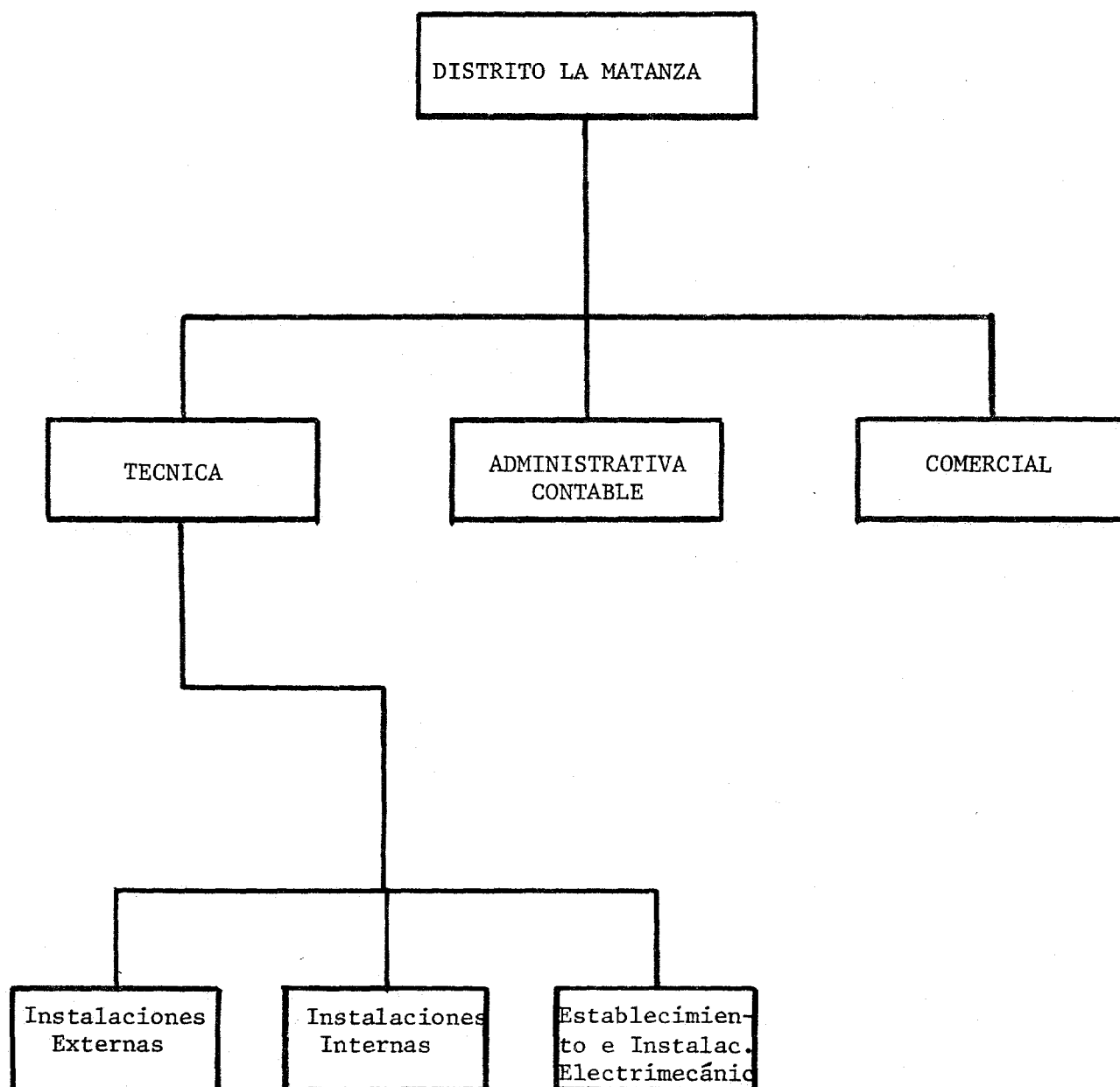
EMPRESA OBRAS SANITARIAS DE LA NACION

ADMINISTRADOR GENERAL

Sub-Administrador General

DISTRITO LA MATANZA

ORGANIGRAMA



LA MATANZAANEXO 23

BALANCE GENERAL

	Diciembre 31,			
	1974		1975	
	Arg.\$MN	%	Arg.\$MN	%
ACTIVO				
CORRIENTE				
Caja y Bancos	.6	-	.4	-
Cuentas por Cobrar-Servicios	4.3	4	12.6	4
Cuentas por Cobrar-Otros	9.6	8	45.7	16
	14.5	12	58.7	20
ACTIVOS FIJOS (Valores Originales)	103.4	88	231.3	80
TOTAL ACTIVO	117.9	100	290.0	100
PASIVO				
CORRIENTE				
Comerciales	1.8	2	8.9	3
Por Ejecución de Obras	5.0	4	5.1	2
A Administración General	33.4	28	179.5	62
Otros	2.1	2	2.3	1
	42.3	36	195.8	68
NO CORRIENTE				
Comerciales	2.7	2	1.7	-
TOTAL PASIVO	45.0	38	197.5	68
PATRIMONIO				
CAPITAL	77.5	66	113.7	40
RESERVAS	.4	-	1.3	-
(PERDIDAS) ACUMULADAS	(4.3)	(4)	(5.0)	(2)
(PERDIDAS) DEL EJERCICIO	(.7)	-	(17.5)	(6)
TOTAL PATRIMONIO	72.9	62	92.5	32
TOTAL PASIVO Y PATRIMONIO	117.9	100	290.0	100

EMPRESA OBRAS SANITARIAS DE LA NACION
BALANCE GENERAL

	Diciembre 31,					
	1974		1975		1976	
	ARG. \$MM	%	ARG. \$MM	%	ARG. \$MM	%
ACTIVO						
CORRIENTE						
Caja y Bancos	356	6	791	6	825	2
Cuentas por Cobrar-Servicios	487	9	2.193	18	6.010	12
Cuentas por Cobrar-Otros	640	12	751	6	9.342	18
Materiales	146	3	561	5	2.586	5
	1.629	30	4.296	35	18.763	37
Activos Fijos (Valores Originales)	3.886	70	7.843	65	31.598	63
Total Activo	5.515	100	12.139	100	50.361	100
PASIVO						
CORRIENTE						
Deudas comerciales	356	6	1.401	12	6.851	14
Deudas Bancarias	107	2	274	2	1.064	2
Cuentas a Liquidar	404	7	1.380	11	4.306	9
Otros Pasivos Corrientes	18	-	94	1	177	-
	885	15	3.149	26	12.398	25
NO CORRIENTE						
Deudas Comerciales	112	2	144	1	642	1
Deudas Bancarias	1.127	21	3.691	30	3.388	7
Provisión Difcia.Cambio	113	2	199	2	53	-
	1.352	25	4.034	33	4.083	8
Total Pasivo	2.237	40	7.183	59	16.482	33
PATRIMONIO						
Capital	3.270	59	3.850	32	25.710	51
Reservas	148	3	502	4	1.922	4
Utilidades (Pérdidas) Acumuladas	(283)	(5)	(140)	(1)	604	1
Utilidades (Pérdidas) del Ejercicio	143	3	744	6	5.644	11
Total Patrimonio	3.278	60	4.956	41	33.880	67
Total Pasivo y Patrimonio	5.515	100	12.139	100	50.361	100

ARGENTINA: PROGRAMA DE AGUA POTABLE RURAL
TERCERA ETAPA

COSTO - EFICIENCIA

Provincia	Localidad	I ₁	I ₁₀	a ₁	a ₂	AOM	CT	CCA	CTA	Pd	CE	Observación
<u>Buenos Aires</u>												
	1 - Pipinas	115.377	6.697	15.449	1.185	1.953	18.587	1.545	17.042	2.013	8,4	
	2 - Mechongue	115.981	6.865	15.529	1.215	3.350	19.994	1.553	18.441	1.226	15,0	
	3 - San Manuel	100.603	9.344	13.471	1.654	3.588	18.713	1.347	17.366	1.326	13,0	
	4 - Alsina	90.858	6.663	12.165	1.179	3.163	16.507	1.217	15.290	1.323	11,5	
	5 - La Emilia	187.079	8.378	25.049	1.483	3.773	30.305	2.505	27.800	4.088	6,8	
	6 - Bme. Bavio	107.000	4.839	14.327	857	6.158	21.342	1.433	19.909	992	20,0	
	7 - O'Brien	200.041	5.054	26.785	895	14.169	41.849	2.679	39.170	1.688	23,2	
	8 - M. Alfonso	93.058	3.735	12.460	661	1.638	14.759	1.246	13.513	1.058	10,6	
	9 - Arroyo Dulce	136.301	6.933	18.250	1.227	3.147	22.624	1.825	20.799	1.417	14,6	
	10 - Carhue - Epecuen	1.193.150	8.527	159.762	1.509	18.725	179.996	15.976	164.020	17.590	9,3	Acueducto
	11 - Tres Lomas	420.357	7.654	56.286	1.355	8.088	65.729	8.443	57.286	5.842	9,8	
	12 - Darragueira	428.591	6.379	57.388	1.129	9.204	67.721	8.608	59.113	5.646	10,5	
<u>Catamarca</u>												
	13 - Las Juntas	78.230	-	10.474	-	433	10.907	1.047	9.860	1.084	9,0	
	14 - P. de Piedra-Toma	39.888	372	5.341	66	367	5.174	534	4.640	806	5,7	
	15 - Andalhuala Yapes	177.296	-	23.740	-	780	24.520	2.347	21.905	1.322	16,5	
	16 - Lavalle	79.002	-	10.578	-	1.147	11.725	1.058	10.667	2.010	5,3	
	17 - A. de Las Sierras	32.154	-	4.305	-	171	4.476	430	4.046	351	11,5	
	18 - Los Altos	57.406	593	7.686	105	478	8.269	769	7.500	680	11,0	
	19 - La Junta de Belén	39.089	741	5.234	131	439	5.804	523	5.281	305	17,3	
	20 - Las Barrancas	52.655	959	7.050	170	734	7.954	705	7.249	335	21,6	
	21 - La Estancia - La Puerta de San José	63.178	-	8.459	-	525	8.984	846	8.138	460	17,6	
	22 - La Ciénaga de Arriba y Abajo	61.702	5.618	8.261	994	1.439	10.694	826	9.868	532	18,5	
	23 - San Martín	7.245	1.968	970	348	172	1.490	97	1.393	258	5,3	
	24 - La Guardia Casa de Piedra	112.584	6.433	15.075	1.139	1.792	18.006	2.261	15.745	680	23,2	
	25 - Entre Ríos	39.066	-	5.231	-	420	5.651	785	4.866	360	13,5	
	26 - Condor Huasi	48.836	986	6.539	175	748	7.462	981	6.481	380	17,1	
	27 - Cañas-Quebrachito	-	-	-	-	-	-	-	-	-	-	
	28 - Puesto del Medio	77.639	7.097	10.396	1.256	982	12.634	1.559	11.075	444	24,9	
<u>Córdoba</u>												
	28 - A. Roca	212.203	8.369	28.414	1.481	6.544	36.439	4.252	32.187	4.424	7,3	
	29 - Las Higueras	82.620	2.809	11.063	497	18.266	29.826	1.659	28.167	2.928	9,6	
	30 - El Arandó	95.832	6.980	12.832	1.220	7.265	21.317	1.925	19.392	1.484	13,1	
	31 - Despeñaderos	133.647	3.893	17.895	689	7.205	25.785	2.684	23.105	4.160	5,6	
	32 - Villa Reducción	100.540	6.382	13.462	1.130	6.510	21.102	2.019	19.083	1.664	11,5	
	33 - James Craik Ampl.	48.374	-	6.477	-	484	6.961	972	5.983	1.712	3,5	
	34 - Sampacho	427.417	7.438	57.231	1.317	10.628	69.176	8.585	60.591	13.522	4,5	
	35 - Cnel. Baigorria	97.958	7.666	13.117	1.357	4.858	19.332	1.968	17.364	1.549	11,4	
<u>Chubut</u>												
	36 - Carren-Leufu	5.498	-	736	-	110	846	110	736	351	2,1	S.R.
	37 - Lago Rosario	6.782	-	908	-	135	1.043	136	907	192	4,7	S.R.
	38 - Bs.As. Chico	12.260	-	1.640	-	180	1.820	246	1.574	244	6,5	S.R.
	39 - El Mirasol	11.847	1.039	1.586	184	170	1.990	238	1.752	160	11,0	S.R.
<u>Entre Ríos</u>												
	40 - Puerto Yerua	72.690	1.048	9.733	185	626	10.544	1.460	9.084	686	13,2	
	41 - N. Vizcaya	24.554	3.522	3.288	623	1.968	5.879	493	5.386	364	14,8	S.R.
	42 - Strobil	99.949	4.314	13.383	764	1.152	15.399	1.499	13.900	1.613	8,6	
	43 - Enrique Carbo	62.064	7.536	8.310	1.334	2.544	12.188	1.246	10.942	741	14,8	
	44 - Est. Yerua	19.484	2.738	2.609	485	1.957	5.051	391	4.660	448	10,4	S.R.
<u>Formosa</u>												
	45 - San Hilario	67.850	3.904	9.085	691	2.204	11.980	1.363	10.617	684	15,5	
	46 - Bme. de las Casas	29.238	1.825	3.915	323	485	4.723	587	4.136	298	13,9	
	47 - Los Chiriguano	75.884	3.609	10.161	639	2.368	13.168	1.524	11.644	657	17,7	
	48 - Herradura	22.106	412	2.960	73	372	3.405	440	2.965	573	5,2	
	49 - Puerto Velaz	56.715	2.227	7.594	1.279	3.720	12.593	1.139	11.454	435	26,3	
<u>Jujuy</u>												
	50 - Arroyo Colorado	49.430	-	6.619	-	490	7.109	993	6.116	371	16,5	
	51 - C. San José	78.357	-	10.492	-	780	11.272	1.574	9.698	532	18,2	
	52 - Pampa Blanca	153.989	-	20.619	-	1.540	22.159	3.093	19.066	544	35,0	
	53 - Tusaquilla	6.428	-	861	-	120	981	129	852	210	4,1	S.R.
	54 - Valle Grande	40.670	-	5.446	-	400	5.846	817	5.029	585	8,6	S.R.
<u>La Pampa</u>												
	55 - Ceballos	63.410	4.042	8.491	715	3.714	12.920	1.274	11.646	228	51,1	

PROVINCIA LOCALIDAD	I 1	I 10	a 1	a 2	AOM	CT	CCA	CTA	Pd	CE	Observaci
<u>La Rioja</u>											
56 - D. Tello	70.476	6.798	9.437	1.203	2.019	12.659	1.416	11.243	871	12,9	
57 - Guandacol - Clara	106.954	-	14.321	-	3.520	17.841	2.148	15.693	1.927	8,1	
58 - Estación Mazán	84.001	3.795	11.248	672	801	12.721	1.687	11.034	877	12,6	
59 - Alpasinche	41.127	1.637	5.507	290	263	6.060	826	5.234	563	9,3	
60 - Agua Blanca	37.782	-	5.059	-	198	5.257	759	4.498	210	21,4	
61 - Malanzan	37.402	-	5.008	-	1.107	6.115	751	5.364	501	10,7	
62 - Aicuña	31.451	-	4.211	-	489	4.700	632	4.068	333	12,2	
63 - San Miguel	20.364	-	2.727	-	56	2.783	409	2.374	250	9,5	
64 - La Caldera - B.Vista	64.339	-	8.615	-	196	8.811	1.292	7.519	266	28,3	
65 - Polco	27.841	-	3.728	-	156	3.884	559	3.325	178	18,7	
66 - San Antonio	14.591	-	1.954	-	121	2.075	293	1.782	226	7,9	
67 - El Portezuelo	80.888	8.363	10.831	1.480	989	13.300	1.625	11.675	678	17,2	
68 - Angulos	31.841	-	4.264	-	122	4.386	640	3.746	204	18,4	
69 - Tilimiqui	22.384	-	2.997	-	140	3.137	450	2.687	264	10,2	
<u>Mendoza</u>											
70 - Los Barriales	112.156	8.768	15.018	1.552	2.303	18.873	2.253	16.620	810	20,5	
71 - Villa Victoria	54.634	5.063	7.315	896	1.417	9.628	1.097	8.531	1.815	4,7	
72 - Cuyo - Maipu	4.270.149	74.300	571.773	13.151	3.320	568.244	85.766	502.478	136.000	3,7	Acueduct
73 - Las Malvinas	93.084	17.008	12.464	3.010	2.346	17.820	1.870	15.950	314	50,8	
74 - V. Teresa	22.987	-	3.078	-	843	3.921	462	3.459	309	11,2	
75 - S. José de Nihuil	45.156	572	6.046	101	1.363	7.510	907	6.603	396	16,7	
76 - Rama Caída	84.128	9.987	11.265	1.768	1.283	14.316	1.690	12.626	996	12,7	
77 - R. Iselin	60.676	5.138	8.125	909	1.136	10.170	1.219	8.951	515	17,4	
78 - C. Benegas	69.884	5.785	9.357	1.024	1.793	12.174	1.404	10.770	407	26,5	
79 - Monte Caseros	69.033	4.346	9.244	769	1.130	11.143	1.387	9.756	534	18,3	
80 - Atuel Norte	30.312	1.987	4.059	352	1.592	6.003	609	5.394	237	22,8	
81 - La Central	51.159	2.910	6.850	515	1.272	8.637	1.027	7.610	629	12,1	
<u>Misiones</u>											
82 - Cerro Azul	115.033	8.567	15.403	1.516	8.233	25.152	2.310	22.842	1.327	17,2	
83 - Capiovi	31.853	1.441	4.265	255	1.940	6.460	640	5.820	894	6,5	
84 - Bdo. de Irigoyen	91.359	2.967	12.233	525	7.948	20.706	1.835	18.871	1.125	16,8	
85 - Wanda II	31.519	10.156	4.220	1.798	4.336	10.354	633	9.721	930	10,5	
86 - Monte Carlos	128.093	2.126	17.152	376	11.476	29.004	2.574	26.430	3.688	7,2	
87 - Alba Posse	111.157	13.205	14.884	2.346	5.635	22.865	2.233	20.632	707	29,2	
88 - Esperanza I	37.341	7.968	5.000	1.410	3.704	10.114	750	9.364	574	16,3	
<u>Neuquen</u>											
89 - Centenario - V. Alegre-Chacras	618.535	-	82.822	-	31.900	114.722	12.423	102.299	15.680	6,5	Acueduct
90 - Las Coloradas,apliac.	17.192	-	2.302	-	230	2.532	345	2.187	402	5,4	
<u>Río Negro</u>											
91 - Las Bayas	8.574	-	1.148	-	171	1.319	172	1.147	192	6,0	S.R.
92 - Arroyo Ventana	29.911	-	4.005	-	300	4.305	601	3.704	221	16,8	
<u>Salta</u>											
93 - Cnel. Molinedo	22.271	3.457	2.982	612	571	4.165	447	3.718	415	9,0	
<u>San Juan</u>											
94 - El Abanico	540.899	6.839	72.426	1.210	5.409	79.045	10.864	68.181	27.413	2,5	Acueduct
95 - Albaridon Angaco	3.546.553	39.494	474.883	6.990	4.525	486.398	71.232	415.166	44.836	9,3	Acueduct
96 - El Mogote-Alto Sierra	807.453	7.118	108.118	1.260	5.432	114.810	16.218	98.592	10.873	9,1	
97 - Los Medanos	174.290	686	23.337	121	1.373	24.831	3.501	21.330	2.517	8,5	
98 - La Puntilla	103.727	-	13.889	-	1.360	15.249	2.083	13.166	2.565	5,1	
99 - Quintero Cuartel	516.456	776	69.153	137	1.024	70.314	10.373	59.941	8.747	6,9	
100- El Encon	28.300	-	3.789	-	1.057	4.846	568	4.278	348	12,3	
101- Huanacache	46.285	1.093	6.198	193	1.770	8.161	930	7.231	425	17,0	
102- El Medanito	96.637	3.516	12.940	622	1.807	14.082	1.941	12.141	1.011	12,0	
103- La Majadita	72.245	-	9.674	-	687	10.361	1.451	8.910	2.232	4,0	
104- Tupeli	125.358	2.195	16.785	388	1.768	18.941	2.518	16.423	970	16,9	
<u>San Luis</u>											
105- Lujan	122.049	-	16.342	-	71	16.413	2.451	13.962	2.025	6,9	
106- Lavaise	6.420	1.753	860	310	75	1.245	129	1.116	239	4,7	
107- L. N. Alem	36.231	7.124	4.851	1.261	277	6.389	728	5.661	442	12,8	
108- Lafinur	5.791	956	775	169	181	1.125	92	1.033	360	2,9	S.R.
109- Cerro de Oro	4.509	-	604	-	135	739	72	667	281	2,4	S.R.
<u>Santa Fé</u>											
110-Tostado - Ampliación	49.360	-	6.609	-	7.037	13.646	991	12.655	1.351	9,4	
111-Malabrigo	137.578	8.889	18.422	1.593	4.373	24.388	2.763	21.625	3.449	6,3	
112-Weelwright	146.722	15.011	19.646	2.657	2.910	25.213	2.947	22.266	5.148	4,3	
113-Montes de Oca	124.898	11.957	16.724	2.116	3.158	21.998	2.509	19.489	3.167	6,2	

PROVINCIA LOCALIDAD	I_1	I_{10}	a_1	a_2	AOM	CT	CCA	CTA	Pd	CE	Observación
<u>Santiago del Estero</u>											
114 - Sumampa	157.612	4.855	21.104	859	2.177	24.140	3.166	20.974	2.951	7,1	
115 - Clodomira	119.423	3.603	15.991	638	9.669	26.298	2.399	23.899	6.439	3,7	
116 - Nuevo Libano	31.155	835	4.172	148	312	4.632	626	4.006	800	5,0	S.R.
117 - San Andres	25.766	2.381	3.450	421	258	4.129	518	3.611	550	6,6	S.R.
118 - El Remate	21.215	6.057	2.841	1.072	212	4.155	426	3.729	490	7,6	S.R.
119 - Chaguar Punco	19.496	2.835	2.610	502	140	3.267	392	2.875	192	15,0	S.R.
120 - Loma del Medio	16.552	-	2.216	-	166	2.382	332	2.050	235	8,7	S.R.
121 - La Soledad	11.363	-	1.521	-	114	1.635	228	1.407	507	2,8	S.R.
122 - Amicha	19.916	2.842	2.666	503	200	3.369	400	2.969	781	3,8	S.R.
123 - La Florida	9.871	2.835	1.322	502	180	2.004	198	1.806	338	5,3	S.R.
124 - San Felix	18.852	-	2.524	-	188	2.712	379	2.333	423	5,5	S.R.
<u>Tucuman</u>											
125 - Pala Palaquimes	146.144	5.391	19.569	954	2.628	23.101	2.935	20.166	1.516	13,3	
126 - C.Fozo Los Puestos	166.772	3.289	22.331	582	3.250	26.163	3.450	22.713	977	23,2	
127 - La Encantada	81.668	1.440	10.935	255	2.605	13.795	1.640	12.155	1.452	8,4	
128 - Colonia 8	74.138	13.923	9.927	2.464	2.597	14.988	1.489	13.499	423	31,9	
129 - Los Nogales	113.850	7.422	15.245	1.314	2.496	19.055	2.287	16.768	788	21,3	
130 - Villa Hileret	77.813	1.823	10.419	323	2.627	13.369	1.563	11.806	799	14,8	

<u>Símbolos:</u>	I_1	Inversión o costo de construcción.	S.R.	Servicio reducido.
	I_{10}	Inversión año 10 o renovación de equipo de corta duración.	AOM	Costos de administración, operación y mantenimiento anuales.
	a_1	$I_1 \times f_1$, donde f_1 , factor recuperación capital (12%, 20 años), $f_1 = 0,1339$ costo de construcción anualizado.	CT	Costo total.
	a_2	$I_{10} \times f_2$, donde f_2 , factor recuperación capital (12%, 10 años), $f_2 = 0,1770$ costo de renovación de equipo anualizado.	CTA	Costo total ajustado
			CCA	Contribución comunitaria anualizada
			Pd	Población de diseño (año 20)
			CE	Relación eficiencia-costo (CTA/Pd)
			<u>DATOS:</u>	Las cifras están expresadas en dólares excepto la de la columna Pd (número de habitantes).

Note: The major adjustments made in the data were the following: 1) all data were adjusted to December 1976 figures using cost of living index and converted to dollars at that time; 2) median data were converted to means based on a study of a small sample of projects, 3) data were adjusted by a factor of 1.25 to compensate for income in land from farms and residences which are otherwise included in national income data, and; 4) family data were divided by the national average of 3.8 persons per household to achieve per capita levels.

ARGENTINA. PROYECTO DE AGUA POTABLE RURAL. CLASIFICACION DE LOS PROYECTOS
DE LA MUESTRA SEGUN PROVINCIA Y RELACION COSTO-EFICIENCIA

Provincia	Número de proyectos en la muestra	Relación costo eficiencia				
		Menos de 5	5 - 10	10 - 15	15 - 20	más de 20
Buenos Aires	12	-	4	6	-	2
Catamarca	15	-	4	3	5	3
Córdoba	8	2	3	3	-	-
Chubut	4	2	1	1	-	-
Entre Ríos	5	-	1	4	-	-
Formosa	5	-	1	1	2	1
Jujuy	5	1	1	-	2	1
La Pampa	1	-	-	-	-	1
La Rioja	14	-	4	5	3	2
Mendoza	12	2	-	3	3	4
Misiones	7	-	2	1	3	1
Neuquen	2	-	2	-	-	-
Río Negro	2	-	1	-	1	-
Salta	1	-	1	-	-	-
San Juan	11	2	5	2	2	-
San Luis	5	3	1	1	-	-
Santa Fe	4	1	3	-	-	-
Santiago del Estero	6	-	1	2	-	3
Total de los proyectos	130	16	42	33	21	18
Costo directo de inversión <u>1/</u> US\$	20,935,547	5,746,570	9,678,392	2,447,749	1,422,344	1,640.492
% del costo total	100	27.5	46.2	11.7	6.8	7.8
Población de diseño :	409.595	197.202	159.224	20.799	13.312	9.058
% de la población total:		48.1	38.9	7.5	3.3	2.2
Costo promedio por proyecto	161.042	359.161	230.438	74.174	67.731	91.138
Población promedio por proyecto	3.151	12.325	3.791	933	634	503
Costo por habitante promedio por pro- yecto: \$	51.12	29.14	60.78	79.50	106.85	181.19

1/ Sin escalamiento.

A comparative profile of the residents of La Matanza,
other Greater Buenos Aires and the rest of the country

Category		La Matanza	Other Greater Buenos Aires	Rest of the country	Argentina as a whole
<u>Wage earner strata 1/</u>					
Lower	(1,000)	180.6	1,684.6	3,658.8	5,524.0
Middle	(1,000)	51.8	925.2	1,121.2	2,098.2
Upper	(1,000)	13.2	342.8	459.3	815.3
Total	(1,000)	245.6	2,952.6	5,239.3	8,437.5
Lower/total	(%)	73.5	57.0	69.8	65.5
<u>Illiteracy 2/</u>	(%)	5.0	3.5	7.9	7.1
<u>Education 3/</u>					
High School	(1,000)	79.6	1,451.3	1,887.4	3,338.6
	(%)	19.5	28.0	21.3	23.1
University	(1,000)	8.6	351.3	360.4	720.3
	(%)	2.1	6.8	4.1	5.0
<u>Housing</u>					
Persons/room, private homes	(#)	1.5	1.25	1.4	1.35
Home tenure -					
Owner occupied	(%)	69.7	55.9	59.3	58.7
Rented	(%)	17.8	31.7	19.4	22.8
Other	(%)	12.5	12.4	21.2	18.5
<u>Population</u>					
Total in 1970	(1,000)	663.7	7,623.8	15,102.5	23,390.0
Growth, 1960-70	(%)	63.8	21.4	13.7	16.7
Foreign-born	(%)	16.0	15.7	6.0	9.5
Under 15	(%)	30.0	30.0	28.9	29.3

1/ Excludes small number of undefined responses. The income classes were formed of the following broad groups: Upper-Professional persons, technicians, managers and upper level public functionaries; Middle - Administrative personnel, sales persons and shopkeepers; lower: laborers, service workers, drivers, etc., 90% of whom earn the minimum wage.

2/ Illiteracy among the population over 10 years of age.

3/ Includes those who attended high school or university but did not terminate their studies. Percentage is in relation to total population over age 20.

Source: INDEC Censo Nacional de Población, Familias y Viviendas - 1970. Resultados obtenidos por muestreos and separate computer print-outs of the same data for La Matanza.

ARGENTINA: Projected demand evolution for La Matanza Water Project

(Population and connections in thousands)

	<u>1977</u>	<u>1981</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>2005</u>	<u>2010</u>
Total population in La Matanza service area <u>1/</u> (1000)	700	763	832	927	1,034	1,113	1,285	1,450
Population served in La Matanza (1000)	230	600	600	750	860	1,100	1,250	1,450
2 as % of 1	33	79	72	81	83	95	97	100
Population served in nearby areas (1000)	60	60	70	75	80	90	120	150
Total population served <u>2/</u> (1000)	290	660	670	725	940	1,190	1,370	1,600
Cumulative connections (1000)	44	100	102	125	158	200	233	250
Average daily water consumption (1000 m ³) <u>3/</u>	95	231	235	254	329	417	480	560
Average daily supply (1000 m ³)	95	590	580	559	553	533	533	533

1/ The area within La Matanza that lies within the radius of 25 km from the center of Buenos Aires. Population projected at annual rate of 2.2%

2/ Includes population that will be served with existing wells.

3/ At 350 liters per capita per day or 1,330 gallons.

ARGENTINA: Projected demand evolution for La Matanza Water Project.

<u>Total population in service area 1/</u>	<u>Population served in La Matanza</u>	<u>2 as % of 1</u>	<u>Population served in near- by areas</u>	<u>Total popu- lation served 2/</u>	<u>Cumulative connec- tions</u>	<u>Average daily water consump- tion (1000 m3)</u>	<u>Ave ply (1</u>
700,000	230,000	33	60,000	290,000	44,000	95	
763,000	600,000	79	60,000	660,000	100,000	231	
832,000	600,000	72	70,000	670,000	102,000	235	
927,000	750,000	81	75,000	725,000	125,000	254	
1,034,000	860,000	83	80,000	940,000	158,000	329	
1,123,000	1,100,000	95	90,000	1,190,000	200,000	417	
1,285,000	1,250,000	97	120,000	1,370,000	233,000	480	
1,450,000	1,450,000	100	150,000	1,600,000	250,000	560	

the area within La Matanza that lies within the radius of 25 km
from the center of Buenos Aires. Population projected at annual rate of 2.2%.

includes population that will be served with existing wells.

ARGENTINA: Resumen de la Situación Económica y Perspectivas

1. En 1975 la actividad económica del país experimentó una caída en términos absolutos en medio de un severo desequilibrio interno y externo. En efecto, el PIB real declinó un 1,4 por ciento en 1975, luego de alcanzar un crecimiento promedio anual de 5 por ciento en el cuatrienio anterior, lo cual se reflejó en tasas negativas para los principales sectores productivos del país. Por su parte la inversión bruta fija disminuyó un 7,2 por ciento, comprometiendo la tasa de expansión de la economía en el año siguiente, mientras que el consumo aumentó en un 2,5 por ciento a pesar de su declinación en el segundo semestre del año.
2. La evolución de la economía en 1976 fue afectada por la contracción iniciada el año anterior. Sin embargo, su comportamiento se vió influido por el programa de estabilización puesto en vigor por el nuevo Gobierno a partir de abril. Los esfuerzos por contener la inflación a través de la reducción del déficit fiscal, el control del crédito y la caída del salario real estuvieron acompañados por una continuación del proceso recesivo hasta bien avanzado el año, cuando se observaron inicios de cierta recuperación. Es así que en 1976 el PIB declinó un 2,9 por ciento, la inversión bruta en capital fijo en un 4,5 por ciento y el consumo en un 8 por ciento. En el Cuadro 1 puede observarse la desaceleración de la tasa trimestral de caída del PIB, como el crecimiento positivo de la inversión a partir del tercer trimestre de 1976, lo cual, junto a la gradual contención de la inflación y el resultado favorable del sector externo permiten anticipar una paulatina recuperación de la economía a partir de 1977.
3. Los sectores más afectados por esta coyuntura fueron la industria manufacturera -cuyo nivel de actividad declinó en 2,8 y 4,7 por ciento en 1975 y 1976 respectivamente- y la construcción que se contrajo en un 9,6 y 14,1 por ciento en dichos años respectivamente, debido en gran medida a la crisis financiera del sector público y a la caída del nivel de inversión en obras públicas. Por su parte el sector agropecuario después de la baja en un 3,5 por ciento en 1975, como resultado principalmente de condiciones climáticas adversas que se reflejaron en un descenso de la producción agrícola de 5 por ciento, experimentó una recuperación del 4,4 por ciento en 1976.
4. El creciente deterioro de la situación fiscal en los últimos años alcanzó su punto más crítico en 1975, al elevarse el déficit global del Gobierno Central respecto al PIB a 12,1 por ciento, o sea el doble del registrado en 1974, y tres veces mayor al promedio 1971-73. Estos déficits han sido financiados con recursos internos, principalmente créditos del Banco Central, constituyéndose así en uno de los principales factores de presión inflacionaria. Como parte del programa de estabilización, el nuevo Gobierno adoptó un conjunto de medidas destinadas a reducir el desequilibrio fiscal, destacándose entre éstas la indexación de las obligaciones tributarias, reducción de los plazos para pago de impuestos, imposición de

nuevos impuestos, adopción de medidas administrativas para evitar la evasión, contención del gasto real y disminución de transferencias corrientes al resto del sector público. Esto se tradujo en una reducción del déficit del Gobierno Central respecto al PIB a poco menos del 8 por ciento, presupuestándose que esta relación alcanzaría a sólo 3 por ciento en 1977. Para el corriente año se ha programado un aumento de la inversión pública de 30 por ciento respecto a 1976, a fin de dar impulso al programa de reactivación de la economía del país. Esta inversión representaría un 15 por ciento del PIB, cifra sin precedente en la historia del país.

5. La aceleración del proceso inflacionario en 1975 -que alcanzó a 335 por ciento a fin de año- se debió principalmente a la liberación del sistema de control de precios en el año anterior, a los crecientes déficit fiscal y de balanza de pagos, frecuentes devaluaciones del peso argentino desde mediados de 1975 y a los ajustes salariales. Por su parte el ritmo de crecimiento de los medios de pago se aceleró durante 1975, alcanzando una tasa de expansión de 193 por ciento, más que tres veces superior a la del cuatrienio precedente. En 1976 se desaceleró la tasa mensual de crecimiento de los precios, pasando de un promedio de 24 por ciento en el primer trimestre a 7 por ciento en el cuarto trimestre y alcanzando en diciembre una tasa anual de 348 por ciento. El mantenimiento en 1977 de las políticas monetarias, de contención del déficit fiscal y gradual recuperación del nivel de actividad económica y salarios reales, permiten anticipar la continuación de la desaceleración de la inflación.
6. El sector externo experimentó un vuelco significativo en 1976, respecto a su evolución en 1975. Las exportaciones de bienes alcanzaron en 1976 a US\$3.900 millones comparado con la caída registrada en 1975 a US\$3.000 millones, debido en parte al descenso de la producción agrícola y al cierre de los mercados tradicionales de carnes. A su vez, las importaciones de bienes declinaron en 1976 a poco más de US\$3.000 millones, reflejando principalmente el proceso recesivo de la economía. Esto, junto al saldo negativo del balance de servicios, determinó en 1976 un superávit en las transacciones corrientes superior a los US\$600 millones, comparado con un saldo negativo de casi US\$1.300 millones en 1975. Por su parte, el saldo también positivo en la cuenta de capital, fuertemente influido por el ingreso neto de casi US\$1.100 millones de capitales compensatorios, determinó un superávit en la balanza de pagos que permitió un aumento de US\$1.200 millones en las reservas internacionales del país. En efecto, debido al alto déficit en balanza de pagos en 1975, las reservas brutas del Banco Central declinaron en casi US\$800 millones, enfrentándose a comienzos de 1976 serias dificultades para atender los compromisos de la deuda externa. Ante esto, el país debió refinanciar los compromisos que vencían en 1976, superando su crisis financiera de corto plazo pero deteriorando la estructura de su deuda a mediano y largo plazo. Una cuidadosa política de endeudamiento externo en los próximos años, unido a las favorables expectativas para las exportaciones del país en 1977 y 1978, podrían contribuir sin embargo a moderar el impacto que pueda tener el alto servicio de la deuda externa que se proyecta para los próximos años.