

PROGRAM TO MODERNIZE THE MANAGEMENT OF WATER AND SEWERAGE SERVICES

(NI-0097)

EXECUTIVE SUMMARY

Borrower:	Republic of Nicaragua.	
Executing agency:	Empresa Nicaragüense de Acueductos y Alcantarillados (ENACAL).	
Amount and source:	IDB (FSO):	US\$13,900,000
	Cofinancing (OPEC):	US\$ 5,000,000
	Local:	US\$ 2,100,000
	Total:	US\$21,000,000
Financial terms and conditions:	Amortization period:	40 years
	Disbursement period:	5 years
	Interest rate:	1% first 10 years 2% thereafter
	Inspection and supervision:	1%
	Credit fee:	0.5%
	Currency:	U.S. dollar
Objectives:	<p>The main objective of the program is to help consolidate water supply and sewerage service reform through an operation specifically designed for the operator ENACAL.</p> <p>The specific objectives of the program are: (i) to support short-term modernization of ENACAL, giving priority to activities for the improvement of operational efficiency through a business strengthening program; (ii) to implement a coherent strategy for greater private-sector participation in the provision of services; and (iii) to help resolve problems associated with providing water supply and sewerage services in poor, illegally settled areas of Managua (marginal settlements).</p>	
Description:	<p>In pursuit of the proposed objectives, the program consists of two subprograms: (i) business strengthening through a service/management contract with an international operator; and (ii) a pilot project to improve and expand services in the marginal settlements of Managua through water supply and sewerage connection works.</p>	

1. Subprogram 1: Business strengthening (US\$13.5 million)

The aim of this subprogram is to modernize service management by means of contracts with an international operator, including: (i) a service component to execute a business strengthening program at the national level; and (ii) a delegated management component in one region of the country.

The service component (US\$8 million, with a duration of three years) would cover the following activities: (i) full renovation of computer systems; (ii) a plan to reduce the volume of unmetered water; and (iii) additional technical advisory services.

The delegated management component would delegate the management of water supply and sewerage systems in the León and Chinandega regions (population 400,000) to a private operator for a period of five years. This component would be essentially self-financing, with the operation providing start-up support during the first three years, covering part of the operator's fees and modernization costs (US\$4 million).

The strengthening program also includes various consultancies and technical assistance operations (US\$1.5 million). Support will be provided in connection with execution of the service/management contract with the international operator from: (i) a firm specialized in the processes of private sector participation to conduct the bidding and contract award process; (ii) program audits to monitor contract performance by both parties; and (iii) quarterly financial reviews of ENACAL accounts. In addition, the program will finance two technical assistance operations for modernization of the sector: (i) a consultancy to support the transformation of ENACAL into a publicly-held corporation; and (ii) preparation, under the responsibility of the regulatory agency INAA, of a master plan for development of the sector.

2. Subprogram 2: Water supply and sewerage connections in settlements (US\$6 million)

This subprogram consists of a pilot project to rehabilitate and regularize water supply and sewerage service in settlements with an estimated total of 4,000 households.

The program would finance the connection works on a multiple-works basis (US\$5 million) and would include a component for public education and promotion campaigns and microfinancing for household facilities (US\$1 million).

Environmental and social review: The program is considered viable from an environmental point of view in that the activities proposed would have a positive environmental impact.

For the component concerning connection works in marginal settlements, the mitigation measures recommended for the NI-0027 program (approved in 1996) will be applied to sewerage expansion works. In particular, before entering into a contract for the construction works, ENACAL must provide evidence that the bidding specifications include the environmental requirements recommended in a Bank-approved environmental impact assessment (EIA) of the project.

Benefits: By involving an international operator, the business strengthening subprogram will permit short-term improvements in ENACAL's financial situation and operations, facilitating the application of sector reforms. It will also permit the formulation of a coherent medium-term strategy for greater private-sector participation.

The subprogram for connections in marginal settlements will help to improve water supply and sewerage services for approximately 4,000 low-income households, and will serve to test a pilot execution mechanism for possible replication.

Risks: A lack of interest among operators could preclude the signature of a contract (or increase its cost). Institutional weaknesses within the counterpart agency (or political interference) could limit the impact of the business strengthening program. *Mitigation:* selection of a major operator with extensive experience in developing countries is essential to the program's success. Various aspects of the service/management contract are designed to be attractive to private operators: (i) limited economic risk; (ii) the combination of service activities with management delegation; (iii) provisions for consultation with key stakeholders to finalize the specifications; and (iv) a strategic platform for possible privatization in the future.

Conflicts with the operator over contract execution could affect the viability of the strategy for greater private sector participation in service delivery over the medium term. *Mitigation:* the contractual documents will be prepared jointly by four consultancies. The contract will be monitored independently through a program audit, which could facilitate arbitration.

Another risk is local resistance to the marginal settlement connection works. *Mitigation:* the program is structured around education and promotion campaigns, with individual financing for household systems, which should facilitate community support. A mechanism tried and tested in the field for a similar ENACAL program, with

European cooperation, will be used. The modest size of this pilot project (4,000 households), will make it possible to concentrate on neighborhoods where community support is greatest.

**The Bank's
country and
sector strategy:**

The program is consistent with the strategy outlined in the country paper, and in particular: (i) support for the State reform process; (ii) the promotion of private-sector participation; (iii) poverty reduction and the inclusion of disadvantaged population segments; and (iv) preservation of the environment.

**Special
contractual
clauses:**

Prior to the first disbursement of resources, ENACAL must present evidence, to the satisfaction of the Bank, that: (i) a funds-transfer agreement has been signed with the borrower; (ii) the customer rate adjustment plan established by INAA resolution 002 of June 26, 1999 has been applied; and (iii) a contract has been signed with an external financial auditing firm for preparation of the quarterly review of ENACAL accounts (paragraph 4.23).

Once the general conditions established in paragraphs (a), (b), (e), and (f) of Article 4.01 of the General Norms have been fulfilled and the funds-transfer agreement between the borrower and ENACAL has been presented, the Bank may disburse up to US\$250,000 to enable ENACAL to fulfill the conditions precedent (paragraph 4.24).

For the disbursement of resources in excess of US\$600,000 under the business strengthening subprogram, ENACAL must present evidence that a service/management contract has been signed with a private operator and that an auditing firm has been hired to monitor that contract (paragraph 4.25).

To be eligible for an initial disbursement of US\$300,000 for the marginal settlements connection subprogram, ENACAL must present evidence that a loan agreement has been concluded with OPEC for the co-financing of the works. For disbursements beyond this amount, ENACAL must present: (i) evidence that a specialized consulting firm has been hired to administer the microloans and promotion component; and (ii) the credit regulations under which micro-loans will be provided to users, subject to prior Bank approval (paragraph 4.26).

Conditions with respect to execution

The borrower must fulfill the following conditions during execution of the program: (i) the management/service contract with the private operator must be executed in accordance with the terms established therein; (ii) the rates must be applied in accordance with INAA decree 45 of June 23, 1998, and resolution 001 of August 7, 1998; and (iii) ENACAL must remain, at a minimum, within the following parameters: no more than 6.5 employees per 1,000 water supply connections; and a collection rate no lower than 85% (paragraph 4.27).

Poverty-targeting and social sector classification:	This operation qualifies as a social equity enhancing project, as described in the indicative targets mandated by the Bank's Eighth Replenishment (document AB-1704, paragraph 3.3).
Procurement:	International public bidding procedures will be used, in all cases where Bank financing resources are required, for works contracts in excess of US\$1 million and goods and service contracts in excess of US\$150,000.
Exceptions to Bank policy:	<p>An exception to Bank procurement policy (GS-206) is being requested to authorize separate bidding on the international operator contract by firms related by way of commonly held stock, provided that: (i) the participation of one of the bidding firms in another does not represent a controlling interest; (ii) one of the related firms does not have operational control over another by virtue of a shareholders agreement or other means and has not effectively delegated its management to a common third party. This exception is justified by the highly concentrated structure of the international water supply sector and the need to increase competition among firms for this contract as much as possible.</p> <p>A second exception is also requested to permit the operator selected to participate without limitation in future bidding processes for the operation of water supply and sewerage services in the country. This exception is necessary to make the contract attractive to major international operators and ensure the greatest possible competition among bidders.</p>

I. FRAME OF REFERENCE

A. Current conditions with respect to water supply and sewerage services in Nicaragua

1. National framework for the provision of services

- 1.1 Water supply and sewerage services in Nicaragua are currently the responsibility of the Empresa Nicaragüense de Acueductos y Alcantarillados [Nicaraguan Water Supply and Sewerage Board] (ENACAL), a national public enterprise serving 181 cities and population settlements and a total of 380,000 registered customers.

Table I-1

Coverage (1995) Sources: IDB/PAHO	Nicaragua	Costa Rica	Honduras	El Salvador	Guatemala
<u>Urban population</u>					
Water supply	81%	100%	91%	88%	90%
Sewerage	34%	98%	66%	75%	30%
<u>Rural population:</u>					
Water supply	28%	n.a.	95%	42%	70%
Sewerage	n.a.	n.a.	71%	24%	35%

- 1.2 The population covered by the water supply service exceeds 2.5 million, with coverage levels in urban areas comparable to those in other countries of the region. Although nearly the entire population of Managua is connected to the water supply system in one way or another, many of these connections are unauthorized and intermittent. The main systems for several cities, including Managua, have defects that affect the bacteriological quality of the water supply. In addition, production and distribution capacity in several parts of the country is inadequate to supply the entire population on a regular basis.
- 1.3 Sewerage service coverage is very limited, serving only 800,000 inhabitants (34% of the urban population) and the condition of many sewage collection systems has deteriorated. Sewerage treatment is limited to a number of intermediate cities, excluding Managua.
- 1.4 Overall, the water supply and sewerage sector in Nicaragua suffers from the usual deficiencies that typically affect public utilities in developing countries. A combination of low rates and poor operational efficiency have kept cost recovery rates down, leading in turn to investment levels inadequate to meet the sector's development needs in terms of coverage and quality of service. The causes of this situation lie in an institutional framework that has not held service providers accountable to the user, nor been conducive to financial self-sufficiency.

2. Recent sector reforms

- 1.5 In 1998, the Government of Nicaragua launched a thorough modernization of the country's legal and institutional framework for water supply and sewerage services, with support from the Bank through the Public Enterprise Modernization Program (PMEP), loan 933/SF-NI. These reforms have made Nicaragua's framework for this sector the most advanced in Central America.

Table I-2

Components of the sector framework:	Nicaragua	Costa Rica	Honduras	El Salvador	Guatemala
Independent regulator	X	X	Under discussion	Under discussion	No
Recent legislation on public utilities, water & sewerage	X	X	Under discussion	Under discussion	No
Rate system based on cost recovery	X	X	Under discussion	Under discussion	No
Concession system	X	X	No	No	No
National operator subject to private law	Planned for 2001	No	No	No	No

- 1.6 The reforms have been the result of a new General Water Supply and Sewerage Services Act (Law 297), published on July 2, 1998, and supplemented by Decree 52 of July 24, 1998. They provide in particular for: (i) separation of the regulatory and service operator functions; (ii) the establishment of a rate system to make the services self-financing; and (iii) the definition of a concession framework allowing for private-sector participation in service delivery under conditions equal to those for public providers.
- 1.7 The regulatory and operator functions were separated by Law 275 of January 28, 1998, which transformed the Nicaraguan Water Supply and Sewerage Board (INAA) – which previously planned, regulated, and provided services throughout the country – into an autonomous regulatory agency. ENACAL, the new national public operator, was established by Law 276 of January 20, 1998, as a commercial entity formed with assets previously held by the INAA.
- 1.8 With respect to the rate system, INAA decree 45 of June 23, 1998, and resolution 001 of August 7, 1998, concerning rate-setting for water supply and sewerage services, apply the criteria of economic efficiency and equity among the users, establishing the long-term marginal cost methodology (CMLP) as the means for setting rates while at the same time allowing low-income users to obtain subsidies, provided that the mechanism used is transparent. Within that framework, the INAA has been implementing an adjustment plan to increase rates to levels where average

total costs are covered and to simplify rate categories. Under this plan, ENACAL will set rates based on the CMLP concept starting in January 2001.

Table I-3

INAA rate adjustment plan	1997	1998	1999	2000
Average rate in local currency	C\$2.78	C\$3.45	C\$4.35	C\$6.00
Average rate in US\$	US\$0.29	US\$0.33	US\$0.39	US\$0.45
Rate increase in real terms	-	+14%	+18%	+15%
Rate structures (user x consumption categories)	9 x 9	7 x 7	5 x 5	3 x 3

(Average water supply and sewerage service rates based on 1998 levels of coverage)

- 1.9 With respect to the concession system, Law 297 provides that service operators, public as well as private, must be organized as corporations subject to common commercial law by July 2001, through concession contracts awarded by the INAA for a maximum duration of 25 years. Law 297 explicitly authorizes service concessions to private operators under the same rules that apply to public providers, except for the obligation to award private concessions by means of public bidding.

B. A number of specific priorities for the sector

1. Coverage in the marginal settlements of Managua

- 1.10 Service deficiencies are particularly flagrant in Managua, the country's capital (population 1.5 million), where an estimated 400,000 persons (roughly 80,000 households in 358 settlements) live in illegally occupied settlements under conditions of extreme poverty.
- 1.11 The great majority of people in these neighborhoods receive their water supply through unauthorized connections, constructed without regard to technical standards. This has resulted in high levels of leakage and highly intermittent, poor quality service, while at the same time interfering with proper operation of the main system.
- 1.12 Of even graver concern is the lack of sewerage facilities in such areas, where sewage is often discharged in the street generating serious health problems (high rates of gastrointestinal illness, malaria, and dengue fever) and continuously undermining the quality of life.
- 1.13 To resolve this situation, which represents a high social priority, ENACAL established a specialized unit for such neighborhoods in 1997. Thus far, the unit has produced a number of results, including regularization of users in 30 settlements. In

many cases, however, the rehabilitation works have not been completed, which underscores the need to define a proper project structure.

- 1.14 Experience has shown that solutions to the service problems in Managua settlements are particularly complex, requiring not only mechanisms adapted to the social and economic conditions of the target populations, but also the participation of various institutional entities (government, municipalities, and other public service enterprises). In particular, any attempt to legalize or expand service in these areas must, under law, be preceded by the regularization of property titles and a favorable decision from the urban planning authorities.

2. Proposal for a delegated management contract for León and Chinandega

- 1.15 Within the context of the PMEP, the Government of Nicaragua agreed with the Bank in 1998 to enter into a delegated management contract with a private operator, on a pilot basis, for the León and Chinandega regions (population 400,000) in the northwestern part of the country.
- 1.16 The following table provides information on ENACAL West, the operator for León and Chinandega. Water supply coverage is similar to the national average, and the average regional volume of unmetered water is estimated at 41%. The coverage of the sewerage system is low, although all of the urban systems are equipped with treatment plants. Labor productivity is similar to the national average, while the overall collection rate of 98%, according to the information available, appears very high.

Table I-4

ENACAL West data (1998)	Water supply	Sewerage	Total
Urban population served	400,000	130,000	400,000
Number of connections	60,000	22,000	60,000
Length of the system	607 km	195 km	802 km
Number of registered meters	43,000	-	43,000 73% of users
Volumes sold in m3	16 million	7 million	16 million
Billing in US\$	\$6 million	\$800,000	\$6.8 million
Number of employees	-	-	400 employees 6.5 per 1,000 connections

- 1.17 Although León and Chinandega account for only 16% of all users in the country, they generate a considerable part of ENACAL's operating surplus, providing the resources used to finance urgent investments in other regions. This cross-

subsidization, which is rooted in the deficiencies of the earlier rate structure, is being corrected through the gradual INAA rate adjustment plan.

- 1.18 It is important to stress that ENACAL has a centralized organizational structure with very limited autonomy for service operations outside of Managua. This situation results in part from inadequate administrative and computer systems (for instance, all commercial records management, including the entry of updated metering data for customer accounts and bill payments, is performed at the central office), which represents a challenge for the formulation and execution of a regional management contract.

C. Conceptualization of the program

1. The need for a program to modernize service delivery

- 1.19 Although the recent sector reforms have laid the groundwork for sustainable long-term improvement of water supply and sewerage services in the country, the current deficiencies in service coverage and quality represent a serious threat to the modernization process. The current level of user dissatisfaction (as regards, in particular, the inequities stemming from illegal use and the many users who are improperly registered and/or billed on an unmetered basis) combined with the recent rate increases in real terms, could jeopardize the ultimate success of the reform process.
- 1.20 Since the reforms initiated in 1998 focused on sector modernization at the macro level (new legal framework, independent regulatory agency, rate plan, concession system), the situation described above underscores the urgent need now for institutional strengthening of ENACAL in conjunction with its transformation into an autonomous, financially self-sufficient public utility subject to commercial law and accountable to its customers. Given the operational deficiencies of ENACAL, the involvement of a leading international operator is essential if such a program is to be structured efficiently.
- 1.21 Moreover, the considerable financial resources and business strengthening that would be necessary to significantly improve the coverage and quality of service clearly indicate the need for greater private sector participation in service delivery over the medium term. For the period 2000-2004, the tentative plan of priority investments identified by ENACAL (not including the works to rehabilitate and expand services in the marginal settlements of Managua) amounts to US\$210 million.
- 1.22 Considering the current technical and political obstacles to a national privatization process, it will be necessary to design mechanisms for participation by an international operator that: (i) will be politically acceptable; (ii) will produce

tangible short-term results; and (iii) could facilitate greater private sector participation over the medium term.

2. Service/management contract with a private operator

a. Description of the proposed contract with a private operator

- 1.23 The modernization program agreed to with the Nicaraguan authorities is essentially organized around a contract with an international water supply and sewerage service operator, with two components: (i) a national-level service contract for execution of the business strengthening programs, with technical support, and (ii) a delegated management contract for one region of the country as a pilot project to gain experience with the private operation of water supply and sewerage services.
- 1.24 The service component combines the supply of equipment with the outsourcing of certain operational functions and technical assistance. The program is organized around three components: (i) full renovation of computer systems (administration and finance, commercial and billing management); (ii) reduction of the volume of unmetered water (updating customer registers, metering, sector delineation); and (iii) technical advisory services for specific tasks. These actions have been selected on the basis of: (i) short-term impact on operational results; and (ii) feasibility in the context of a service contract without delegating management to a private operator.
- 1.25 The management component would delegate the management of water supply and sewerage systems in the León and Chinandega regions, in the northwestern part of the country. The service area delegated to the private sector would cover a population of 400,000 (16% of all users). The program would support execution of the management contract with funding to increase its feasibility in two ways: (i) by reducing the impact of development costs connected with institutional change; and (ii) by ensuring the availability of funds for a plan to modernize and improve the quality of service.

Table I-5

	Service contract	Management contract
Scope	National	Regional 60,000 connections
Responsibilities of the operator	<ul style="list-style-type: none"> • Computer renovation • Plan to reduce unmetered water • Technical assistance 	<ul style="list-style-type: none"> • Delegation of management for the Léon and Chinandega systems
Operator fees	<ul style="list-style-type: none"> • Largely fixed (US\$8 million). • Variable up to 10% of the total 	<ul style="list-style-type: none"> • Combination of fixed and variable
Financing	<ul style="list-style-type: none"> • IDB loan for the fixed portion • ENACAL for the variable portion 	<ul style="list-style-type: none"> • Largely self-financing • IDB supplement (first 3 years)

- 1.26 The following support will be provided in connection with execution of the service/management contract with the international operator: (i) a firm specialized in private sector incorporation to conduct the bidding and contract award process on a transparent basis; (ii) a program audit firm to monitor contract performance by the operator as well as ENACAL; and (iii) quarterly financial reviews of ENACAL's accounting department.
- 1.27 By way of follow-up support for the sector modernization process, the program will also finance: (i) the formulation of a comprehensive plan for medium-term development of the sector, including a study of the feasibility of greater private-sector participation in the operation of water supply and sewerage services; and (ii) technical assistance with the final stage of sector reforms under the PMEP, with the transformation of ENACAL, in 2001, into a publicly-held corporation subject to the Commercial Code.

b. An original mechanism for private sector participation

- 1.28 The proposal for a contract with an international operator, combining a service contract at the national level with a management contract at the regional level, represents an original mechanism for executing a business strengthening program and gradually increasing private sector involvement.
- 1.29 First, the combination of service and management components allows for a contract with greater scope for a major international operator, and improves the feasibility of the regional management contract. This point is particularly critical given the relatively modest size of the service area to be delegated and the problems associated with ENACAL's highly centralized management. In addition, the ability

to execute the business strengthening program through a highly experienced operator, as opposed to consulting firms, will strengthen the practical value of the technical assistance provided.

- 1.30 The combined service/management contract mechanism proposed introduces incentives into the relationship between the operator and ENACAL that would not exist with two separate contractual components. Delegation of management at the regional level offers a demonstration platform for the operator which should in turn considerably strengthen the overall efficiency of the service contract. In practice, given the presence of a private operator in León and Chinandega as a basis for comparison, ENACAL management will be subject to constant pressure to improve its performance and apply the recommendations of the service contract. In the delegated management area, the operator will in turn be obliged to validate the quality of advisory assistance and equipment being provided at the national level under the service contract.
- 1.31 These incentives will be reinforced by the operator's fee structure, which will include a variable portion not only for the delegated management component but also for the service contract, tied in the latter case to ENACAL's operating results at the national level. This will provide still further incentive to maximize the program's impact and give practical support to the process.

3. Water supply and sewerage connections in marginal settlements of Managua

- 1.32 Combined with the business strengthening program for ENACAL is a component exclusively designed to improve service delivery in the marginal settlements of Managua, with a view to expanding the coverage of service and regularizing unauthorized connections.
- 1.33 Program financing would be provided on a pilot basis for works to rehabilitate and expand water supply and sewerage service on a multiple-works basis in settlements selected on the basis of technical and institutional viability. The program also includes education campaigns and microfinancing for household facilities with the participation of nongovernmental organizations (NGOs) in each settlement. This will help to broaden support within each community with an execution mechanism already validated in a cooperation project between ENACAL and the European Union.

D. Strategy and rationale for Bank participation

- 1.34 The Bank strategy for Nicaragua is defined in the country paper (GN-1931), which refers in particular to the following components of the matrix for this program:
 - (i) support for the processes of State modernization and macroeconomic reform;
 - (ii) the promotion of private-sector participation in the economy, particularly in

providing basic services; (iii) poverty reduction and the integration of disadvantaged population groups into society; and (iv) environmental protection. The structure of the project is clearly consistent with this strategy.

1. Reinforcement of sector reforms at the macro level and strengthening of the regulatory agency INAA

- 1.35 The proposed program would improve the sustainability of sector reforms initiated in 1998 through the business strengthening program for ENACAL, which included the activities most urgently needed for the short-term improvement of service, while at the same time helping to avoid user resistance to the reforms. The expected increase in ENACAL billings and collections should make more resources available for the most urgent investments in water supply and sewerage systems.
- 1.36 The Bank has been instrumental in creating the new regulatory agency INAA through a MIF program including technical assistance (particularly in the area of rate analysis), staff training and the purchase of equipment. The INAA is now a well organized independent agency with financial autonomy (its income being generated by a charge of 3.5% of billings). The final stage of the MIF program, planned for 2000, includes technical assistance for the establishment of a transparent mechanism for subsidizing low-income users.
- 1.37 The INAA must nonetheless continue to perform its regulatory function: (i) developing a strategy for sector development over the medium term; and (ii) obtaining a better flow of information on ENACAL's performance. From that standpoint, the program constitutes a second stage in the strengthening of INAA, with its focus on activities to strengthen ENACAL and thereby improve the flow of information (modernization of computer systems, updating of the customer register, water metering plan), in conjunction with financing for the master plan for sector development to be supervised directly by INAA.
- 1.38 To support the final stage of the sector reforms planned within the framework of the PMEP, the program will also finance a technical assistance project to support the transformation of ENACAL in 2001 into a publicly held corporation subject to the Commercial Code.

2. Promotion of a strategy for gradual private sector involvement

- 1.39 The Bank has been promoting greater private sector participation in public services in Central America as the most efficient means of sustainably improving the quality and coverage of service. In the case of Nicaragua, given the sector's investment needs and operational deficiencies, private sector involvement appears to represent the most rapid solution to the acute problems of coverage and quality. In the short term, the service/management contract with a private operator, which represents the centerpiece of the modernization program, provides an acceptable compromise by

combining the strong presence of a major operator in ENACAL with measures to overcome strong resistance to the privatization of public services from various interest groups in the country.

- 1.40 The program also delineates a coherent policy for gradually increasing private-sector participation in the sector over the medium term in the context of a phased-in strategy. The service/management contract represents the first step in this strategy, with the aim of creating more favorable conditions for privatization at the national level.
- 1.41 At the end of the three-year business strengthening program it is expected that: (i) the quality of technical and economic information, particularly in the customer register, will have improved considerably; (ii) the customer base will have expanded with the connection works in marginal settlements; (iii) a regional platform will have been established for demonstrating the efficiency of private service management; and (iv) the introduction of a private operator by means of a relatively unconflictive contractual mechanism will ideally have allowed private-sector participation to gain greater acceptance among the interested groups.
- 1.42 The final objectives of the PMEP sector reforms should also have been accomplished by that time, including the adoption of rates based on the CMLP methodology and transformation of ENACAL into a publicly-held corporation. The master plan for sector development formulated by INAA will provide a strategic medium- and long-term strategic vision and provide a basis for identifying politically viable options for greater private-sector participation at the national level.

3. Service in the marginal settlements of Managua

- 1.43 The component for connections in settlements of Managua will have a direct impact in terms of poverty reduction through better delivery of these essential services and improved health conditions for the poor.
- 1.44 Once the status of these disadvantaged users has been regularized, they can be gradually incorporated as ENACAL customers, giving them full rights to quality service while at the same time improving ENACAL's operational performance in terms of: (i) an expanded customer and billing base; and (ii) reduced volumes of unmetered water and better overall operation of the distribution system. At the same time, expansion of the sewerage system will help to protect the aquifers Managua depends on for its water supply.

E. Bank experience and lessons learned

1. Previous multiple-works loans

- 1.45 Since 1992, the Bank has made two loans (675/OC-NI and 881/SF-NI) to support rehabilitation of the country's water supply and sewerage facilities that had deteriorated during the preceding decade. The objectives of these operations, which focused essentially on infrastructure works, were accomplished – with the notable exception of coverage expansion for Managua because of the difficulties associated with illegal settlements occupied during the Civil War period.
- 1.46 The greatest lesson learned from these efforts was the need to: (i) resolve problems with respect to property ownership and urban planning as a prerequisite for connection works in marginal settlements; and (ii) design an execution mechanism adapted, with community involvement, to these marginal areas. The experience of a current European Union cooperation project with ENACAL to expand service in five small towns in the country has proven to be a particularly useful means of structuring a viable mechanism for these neighborhoods. This program includes the participation of NGOs for education campaigns, microfinancing for household facilities at market rates, with customer charges collected by the NGOs remunerated on a variable basis according to collection levels. Using a collection and security deposit mechanism adapted to the needs of the poor, this program has produced very positive results, with an average repayment of 90%.
- 1.47 In 1996, the Bank approved a sewerage program for Managua and Lake Managua (NI-0027), to finance the construction of treatment plants and rehabilitation works for the capital's sewerage system together with technical assistance in monitoring lake water quality. This operation has not yet been initiated, and the Bank is considering an additional loan to support its execution with financing for additional costs, resulting mainly from Hurricane Mitch (NI-0142).

2. Public service modernization program

- 1.48 The implementation in 1998 of water supply and sewerage sector reforms within the framework of the PMEP (933/SF-NI), has revealed substantial institutional weaknesses within ENACAL and the need to facilitate application of the rate adjustment plan. It also appears necessary to stay involved in the strengthening of the recently created regulatory agency INAA, whose priority is now to formulate a master plan for medium-term development of the sector and to gain access to good technical and financial information on service delivery in order to perform its regulatory functions.

3. Experiences with private sector participation in water supply and sewerage services in other countries

- 1.49 Among the many programs conducted by the Bank in recent years, two experiences are particularly relevant to this operation: (i) a project to privatize the National Water and Sewerage Board of Panama (IDAAN), which showed the extreme political risks and difficulties involved in this type of process and the need to design processes for accommodating public opinion; and (ii) a management contract with the state of Lara, Venezuela, which elicited a bid from only one operator, showing the need to design attractive contracts and bidding processes that encourage greater competition, taking the realities of the water sector into account – i.e. the inherent risks of political interference and the highly concentrated structure of international operators.

4. Implications for the structure of this program

- 1.50 These lessons have been duly incorporated into the design of this new operation: (i) the importance of renovating information systems under the ENACAL business strengthening program – which will be conducted in association with the INAA, thus enabling the latter to strengthen its regulatory and supervisory capacity at the same time; (ii) the design of an original mechanism for execution of the ENACAL business strengthening program, with the involvement of a major international operator under politically viable arrangements (the combination of service and delegated management activities should significantly enhance the efficiency of the modernization program); and (iii) special emphasis on the bidding process for this contract, which will be conducted by a consulting firm specialized in the processes of private-sector incorporation with extensive promotion and efforts to maximize competition.

II. THE PROGRAM

A. Objectives of the program

- 2.1 The main objective of the program is to help consolidate water supply and sanitation reform through an operation specifically designed for the operator ENACAL, promoting sustainable improvement in service coverage, quality, and efficiency.
- 2.2 The specific objectives of the program are: (i) to support short-term strengthening of ENACAL, giving priority to activities for the improvement of operational efficiency through a business strengthening program; (ii) to implement a coherent medium-term strategy for gradually promoting private-sector participation in the provision of services, starting with a service/management contract with an international operator; and (iii) to help resolve the complex problems associated with providing water supply and sewerage services in poor, illegally settled areas of Managua (marginal settlements).

B. Description of the program

- 2.3 With these objectives, the program consists of two subprograms:

1. Subprogram 1: Business strengthening (US\$13.5 million)

- 2.4 The use of a service/management contract with a private international operator, combining a service component at the national level with a delegated management component in one region of the country, represents the centerpiece of the business strengthening program.

a. Service contract (US\$8 million)

- 2.5 The service component for execution of the ENACAL business strengthening program will be national in scope (excluding León and Chinandega where management would be delegated) with a duration of three years. The operator's responsibilities under this component can be classified as follows: (i) the supply and installation of equipment, written procedures, and training; (ii) the performance of specific tasks by the operator's own personnel under a predefined plan; and (iii) technical assistance.
- 2.6 The operator must maintain the technical and field staff necessary to execute the work specified in the contract. Remuneration for the service component will include a variable portion as an incentive to the operator to align its activities with the business strengthening program.

(i) Renovation of computer systems (US\$3 million)

- 2.7 A computer platform will be installed with sufficient capacity and modern processing systems for commercial, administrative, accounting, and financial management. Given the complexity and high level of the technology to be transferred, this component will be executed on a "turn-key" basis, including installation of equipment and software, data transfer and entry, written procedures, training, and maintenance during the life of the contract, and will be accompanied by a redesign of administrative and commercial procedures.

(ii) Reduction of unmetered water (US\$4 million)

- 2.8 The unmetered water reduction program includes a series of tasks to be executed by the operator: (i) updating the customer register with a census in the field to identify illegal users and correct billing record errors; (ii) implementing a plan for settlement metering and sector delineation in order to improve the operating efficiency of the distribution systems and reduce water loss; and (iii) implementing a plan for the installation and replacement of individual meters to improve the level of household metering.
- 2.9 The operator must provide the most advanced technical equipment (such as settlement meters and leak detectors) on a turn-key basis. The program includes a budget of US\$2 million for the purchase of individual meters, boxes, and valves, and related works. It will be the operator's responsibility, in using this budget, to determine the technical specifications for the bidding to be conducted by ENACAL.

(iii) Additional technical assistance (US\$1 million)

- 2.10 The service component also includes an additional technical assistance program consisting of: (i) management assistance in developing the planning and control functions (account analysis, business plan, investment plan); and (ii) the improvement of operating practices through specific steps to improve water quality and optimize the use of energy and general operation of the distribution system.
- 2.11 Technical assistance on operating practices will be conducted as a learning process in the field by training mid-level technical and supervisory staff with a view to promoting exchanges between professionals based on practical experience. The budget for these technical assistance activities includes the provision of certain equipment on a turn-key basis (and in particular, laboratory equipment).

b. Management component for Léon and Chinandega (US\$4 million)

- 2.12 The private operator will operate ENACAL West services autonomously following principles of private enterprise with a view to improving the overall quality and efficiency of service. The operator will be delegated authority over staff, and will

have the authority to order service interruptions in cases of payment arrears as defined by law.

- 2.13 The private operator will provide the management team and share the risks of operation with ENACAL by way of a variable remuneration arrangement based on the fulfillment of operational and financial goals. The operator will not be responsible for investments in water supply and sewerage systems, which will be covered by: (i) a maintenance, replacement, and modernization fund (MRM) financed mainly with rate collection resources, whose use by the operator will be subject to contractually stipulated procedures; and (ii) a fund for new investments to expand service, charged exclusively to ENACAL. A minimum, contractually determined amount will be maintained in this fund according to the operational requirements of the systems.
- 2.14 The management component for León and Chinandega would be financed essentially with proceeds from local customer billings, which will cover operating and maintenance costs, replacement costs, investment, and remuneration of the private operator. The proposed loan would, however, support start-up during the first three years, covering a portion of: (i) the private operator's fees (US\$1.6 million; and (ii) the modernization plan and the MRM fund (US\$2.4 million). It will also be possible for ENACAL to resort to external grants to cover its service expansion obligations.
- 2.15 Partial coverage of the MRM fund will in particular guarantee the availability of funds for a special modernization plan to improve service quality, including: (i) plant renovation; (ii) the purchase of modern equipment for operations; (iii) meter installation; (iv) staff training; (v) development of a laboratory; and (vi) rehabilitation of commercial offices.

Table II-1
Summary of the Budget for the Service/Management Contract

Components	Remuneration of the operator* (technical assistance turn-key supply of equipment)	Support for execution (purchase and installation of equipment)
Renovation of computer systems	US\$3 million	-
Unmetered water reduction plan	US\$2 million	US\$2 million (purchase and installation of meters, boxes, and valves)
Additional technical assistance program	US\$1 million	-
Delegated management support in León and Chinandega	US\$1.6 million (lump-sum portion)	US\$2.4 million (MRM fund portion)
TOTAL	US\$7.6 million	US\$4.4 million

* Direct, lump-sum fee paid to the operator, excluding the variable portion based on incentives and penalties

c. Other institutional components (US\$1.5 million)

- 2.16 Support will be provided in connection with execution of the service/management contract from: (i) a firm specialized in private-sector incorporation processes to conduct the bidding and contract award process; (ii) an international technical and financial auditing firm for independent monitoring of the program, including contract performance by the operator and the results being produced by ENACAL; and (iii) quarterly financial reviews of ENACAL's accounting department.
- 2.17 The program would finance formulation of a comprehensive medium- and long-term sector development plan by the regulatory agency INAA during the second year of the program. This master plan will cover in particular a review of the ENACAL investment program, the definition of service targets, and an evaluation of the alternatives for, and potential benefits of, greater private-sector participation in service delivery, including a feasibility analysis of concession, leasing, and delegated management contracts on a national basis or for the major cities.
- 2.18 The program will facilitate the final stage of the PMEP institutional reforms by way of technical assistance to support the transformation of ENACAL into a publicly-held corporation subject to the Commercial Code. The study will define in particular the mechanism for governance and the apportionment of ENACAL stock by an agency of the Nicaraguan government.

2. Subprogram 2: Water supply and sewerage connections in marginal settlements (US\$6 million)

- 2.19 This subprogram would rehabilitate and expand water supply and sewerage services on a pilot basis in a number of marginal settlements in Managua through two

components: (i) connection works in marginal settlements under the multiple-works modality (US\$5 million); and (ii) community promotion and education campaigns, together with microfinancing for household sanitary facilities (plumbing), with the participation of NGOs (US\$1 million).

- 2.20 ENACAL will be responsible for direct contracting of the connection works in eligible settlements on a multiple-works basis. The second component (promotion and household facilities) will be executed through the intermediary of a specialized consulting firm hired by ENACAL.
- 2.21 In each settlement, this consulting firm would be responsible for the design of projects, preparation of agreements with the NGOs, and the administration of micro-lending under ENACAL supervision. In the field, the NGOs would then assume responsibility in each settlement, *inter alia*, for: (i) conducting the consultation, publicity, and education campaigns; (ii) organizing the execution of the household facility works; and (iii) administering the collection of individual loans. The execution mechanism to be used was that developed and validated earlier for an ENACAL pilot project in cooperation with the European Union.

C. Scale of the program

1. Business strengthening subprogram

- 2.22 The service component under the service/management contract for the ENACAL business strengthening program has been designed by selecting priority tasks on the basis of: (i) their potential impact on ENACAL performance; and (ii) their feasibility in conjunction with a service contract mechanism, i.e. taking into account the limitations inherent in not delegating operational management of the systems to an operator.
- 2.23 Renovation of the computer systems and the plan to reduce unmetered water were identified as the most feasible activities with the greatest short-term impact within the context of the service contract mechanism. It was decided to fully renovate the computer systems given the total obsolescence of those currently in use. In structuring the unmetered water reduction plan, resources will be allocated among tasks and geographic areas so as to maximize efficiency in the use of funds.
- 2.24 The volume of program resources needed to provide support during the first three years of the delegated management component for León and Chinandega has been calculated to absorb the initial impact of the operator costs and the proposed modernization plans during the period of time before private management can have a significant impact on the financial results (paragraph 5.12).

Table II-2

Financial elements of the delegated management component for León and Chinandega (in US\$ million)	Year 1	Year 2	Year 3	Year 4	Year 5
Project operator fees	0.8	0.6	0.4	0.3	0.3
Modernization plan (MRM fund)	1.7	0.5	0.4	0.4	0.6
Projected additional costs of the delegated management component	2.5	1.1	0.8	0.8	0.9
IDB contribution toward fees	0.8	0.6	0.2	0	0
IDB contribution toward MRM fund	1.7	0.5	0.2	0	0
Total IDB contribution	2.5	1.1	0.4	0	0
IDB percentage	100%	100%	50%	0%	0%
ENACAL percentage	0%	0%	50%	100%	100%

2. Subprogram for water supply and sewerage in marginal settlements in Managua (US\$6 million)

- 2.25 Evidence that property ownership has been regularized and a favorable decision has been issued by urban authorities are legal prerequisites for conducting the works in these areas. The municipal government of Managua is now in the process of updating its land occupancy plan. Because of this review process, only 11 settlements (of the 54 initially identified based on the technical feasibility of expanding service without the need for works to expand the main system) have been given an unqualified green light. Most have received conditional authorization.
- 2.26 Under those circumstances, this subprogram has been designed as a pilot project to finance only about 4,000 households in a first stage, making it possible to concentrate on settlements where community support and potential economic benefit are greatest.

D. Program cost and financing

- 2.27 Program costs are shown in the following table. The total cost of the program is US\$21 million, of which the Bank would finance US\$13.9 million from the Fund for Special Operations (FSO); US\$5 million would be financed by the Organization of Petroleum Exporting Countries (OPEC); and US\$2.1 million would come from the Government of Nicaragua.

Table II-3

1. COST OF THE PROGRAM	Total by source of financing (thousands of US dollars)			
	IDB/ FSO	OPEC	Local	Total
1. Business strengthening program:	7,100	0	900*	8,000
Renovation of computer systems	2,700		300	3,000
Reduction of unmetered water	3,600		400	4,000
Technical advisory support for management	800		200	1,000
2. Delegated management in León and Chinandega:	4,000	0	0	4,000
Operator fees	1,600			1,600
Replacement and investment fund	2,400			2,400
3. Consultancies/modernization plan:	1,300	0	200	1,500
Bidding process for the operator contract	190		10	200
Contract monitoring	500		150	650
Review of ENACAL accounts	130		20	150
Transformation into a corporation	80		20	100
Sector development plan (INAA)	400		0	400
4. Settlement services expansion:	600	4,800	600	6,000
Connection works		4,800	200	5,000
Revolving credit line (household facilities)	400		100	500
Management/consulting	100		150	250
Education and promotion (NGOs)	100		150	250
SUBTOTAL	13,000	4,800	1,700	19,500
5. Not specifically allocated:	500		200	700
Contingencies	300		200	500
Cost escalation	200			200
6. Financial costs:	400	200	200	800
Interest	261	150	0	411
Credit fee	0	0	200	200
Inspection fee (F.I.V.)	139	50	0	189
TOTAL	13,900	5,000	2,100	21,000

- 2.28 The financial conditions for the Bank's Fund for Special Operations (FSO) are as follows: (i) 40-year term ; (ii) 10-year grace period; (iii) 1% interest the first ten years, 2% thereafter; (iv) credit fee of 0.5% of the undisbursed balance; and (v) 1% inspection fee.
- 2.29 The financial conditions for the OPEC loan are as follows: (i) 16-year term; (ii) 5-year grace period; (iii) 1% interest; (iv) credit fee of 0.5% of the undisbursed balance; and (v) 1% inspection fee.

- 2.30 It is also important to note that the table does not include the following program costs: (i) ENACAL's contribution to cover the variable portion of the operator's fees, to be determined on an annual basis according to the fulfillment of contractual targets; and (ii) resources generated internally in León and Chinandega to be used to finance most of the delegated management component.

III. BORROWER AND EXECUTING AGENCY

A. Borrower and executing agency

- 3.1 The borrower will be the Republic of Nicaragua. The executing agency for the program will be ENACAL. The borrower will sign a loan agreement with ENACAL to establish, *inter alia*, transfer arrangements with financial conditions similar to those established by the Bank for the borrower.
- 3.2 The loan agreement between the borrower and ENACAL will not include funds for the study in connection with development of the master plan for sector development, which will be conducted directly by INAA. The transfer of these funds between the borrower and the INAA will be handled as a budgetary appropriation.

B. Legal framework and status of the executing agency

- 3.3 The sector framework is defined in the General Water Supply and Sewerage Services Act (Law 297), published on July 2, 1998, which defines the division of responsibilities between the operator and the regulatory agency.
- 3.4 ENACAL was established by Law 276, published on January 20, 1998, with assets previously held by the old INAA. It is a commercial enterprise with its own legal capacity and assets, governed by a seven-member board of directors appointed by the President of the Republic. The chairman of the board is also executive president, with responsibility for management, legal representation of the enterprise and general administrative authority.

C. ENACAL's operational performance

- 3.5 General levels of coverage and service deficiencies were described in the first chapter (frame of reference). The following table summarizes the operational data for ENACAL:

Table III-1

Basic data on ENACAL (1998)	Water supply	Sewerage	Total
Urban population served	2,500,000	800,000	2,500,000
Number of connections	380,000	160,000	380,000 6.5 residents per connection
Length of the system	4,300 km	1,400 km	5,700 km
Number of registered meters	253,000	-	253,000 65% of users
Number of employees	-	-	2,500 employees 6.6 per 1,000 connections

- 3.6 The volume of water billed by ENACAL in 1999 totaled 113 million cubic meters, which amounts to daily consumption of 810 liters per connection. The estimated average for unmetered water is 48%, with figures varying from one urban system to the next, between 40% and 47% (the case of Managua).
- 3.7 Labor productivity is insufficient, with an average of 6.6 employees per 1,000 connections. Considering the condition of the systems, an efficient average would be roughly 4 employees per 1,000 connections. This situation results largely from inadequate computerization, equipment deficiencies, and the limited qualifications of most employees.
- 3.8 According to the information available, the national average collection rate for the first six months of 1999 was 85%. Collection efficiency, however, varies considerably: it is less than 80% in Managua compared with 94% in the rest of the country.

D. ENACAL's financial situation

- 3.9 The following table summarizes some of the main production data and financial information for ENACAL in recent years:

Table III-2

Financial data on ENACAL	1996	1997	1998	1999E*
Water produced (thousands of m3)	185,835	203,649	209,578	216,899
Water billed (thousands of m3)	98,957	102,193	109,431	113,238
Unmetered water (%)	47%	50%	48%	48%
Operating income (US\$)	30.4 m	34.1 m	40.7 m	46.1 m
Operating costs (US\$)	31.1 m	30.8	50.4 m*	(40.0 m)
Net income (US\$)	(1.5 m)	2.1 m	(7.4 m)*	4.4 m
Investment (US\$)	74.5 m	29.5 m	16.3 m	41.0 m
Net fixed assets (US\$)	151.7 m	153.5 m	128.4 m	148.8 m
Long term debt (US\$)	48.6 m	59.9 m	55.4 m	68.6 m

* The negative results in 1998 are attributable to special adjustments to correct distortions in financial statements for earlier years. The investments consist mainly of grants.

- 3.10 The application of substantial rate adjustments, combined with an increase in billing volume, led to a significantly improved financial situation, with a parallel increase in income and net profit. With the rate increases planned for 2000, and the application thereafter of rates based on the CMLP methodology, the level of internally generated funds should continue to rise in the near future.
- 3.11 ENACAL's financial structure is highly favorable, with debt limited to only 39% of capital. This situation results mainly from the fact that a large portion of its assets have been constituted with grants and/or soft loans, which also helps to lessen its financial burden. Assuming donor availability, ENACAL's current debt carrying capacity would enable it to borrow additional financing over the next few years to complete investments not covered by internally generated funds.

IV. EXECUTION OF THE PROGRAM

A. Executing unit

- 4.1 The project will be executed by a special executing unit of ENACAL, which will be responsible for daily supervision of the private operator contract, with support for the technical and financial audits to be provided under the service/management contract.
- 4.2 This executing unit will be made up of the ENACAL unit currently responsible for Bank programs. In addition, ENACAL will set up a monitoring and advisory committee, composed of the manager for planning, the officer responsible for the marginal settlements unit, and such other management personnel as may be necessary to facilitate execution of the program and fulfillment of its objectives. This committee will also have a permanent representative in INAA, who should have full access to the information generated.

B. Execution of the business strengthening subprogram

1. Operation of the service/management contract

- 4.3 For the preparation of the service contract component, the Bank has commissioned an extensive diagnostic assessment of ENACAL and is financing a consultant study with a grant from the French Trust Fund. A detailed design of the program (specific tasks, budget, timetable, targets) has been completed and the draft contract should be ready by the end of 1999.
- 4.4 For the preparation of the delegated management component for Léon and Chinandega, the Bank has commissioned another consultancy with C&D administrative funds. Agreement has already been reached on the basic terms of the contract and the draft should be completed by the end of 1999.

2. Bidding for the private operator management/service contract

- 4.5 Once the proposed operation has been approved, immediate steps will be taken to hire an international consulting firm specialized in the processes of private sector incorporation, or an investment bank, to conduct the bidding for the management/service contract with a private operator.
- 4.6 The terms of reference for this contract should include: (i) preparation of the specifications (finalization of contractual documents, structuring of financial mechanisms, definition of the criteria for competition, including the relative weight of the technical and economic bids and of the service and the management components; (ii) execution of an extensive promotion campaign and consultation

with international operators; (iii) execution of the prequalification process and evaluation of bids; (iv) preparation of the terms of reference for the program audit; and (v) assistance to authorities with contract signature.

- 4.7 The bidding documents and procedures will be subject to prior approval by the Bank. Proposals will be evaluated based on a combination of the technical and economic bids (paragraph 4.35). Given the need to ensure transparency, the technical bids will be scored by a panel of independent experts to be approved by the Bank.

3. The strengthening subprogram

- 4.8 Before the service/management contract begins, the consulting firm hired to conduct the program audit will determine the baseline for ENACAL's national financial and operational situation, as well as detailed evaluations of the facilities in León and Chinandega. Throughout the program, this firm will monitor progress in fulfilling the contract, the performance of the operator and ENACAL on a semiannual basis.
- 4.9 For the quarterly review of ENACAL accounts, the terms of reference for the auditors annually certifying ENACAL's financial statements will be expanded. The aim is to correct potential problems with the accounts in advance, in order to facilitate the annual process of financial statement certification while at the same time providing continuing training to the accounting department staff.
- 4.10 The technical assistance to support ENACAL's transformation into a publicly-held corporation will have to be executed in coordination with the regulatory agency INAA, and will include a determination as to the governing body that will hold the stock and approve the business development plans annually.
- 4.11 The study in connection with preparation of the master plan for sector development will be conducted during the second year of the program under the direct responsibility of INAA. It will include an analysis of the feasibility of greater private sector participation in a subsequent stage. To broaden the options available to the Nicaraguan government if it decides to delegate services to the private sector on a nationwide basis, the delegated management contract for León and Chinandega will include an advance termination option upon completion of the component, subject to prior Bank approval.

4. Operator fees

- 4.12 The operator will receive a separate fee for each service and management component. The service component fees will be mainly fixed, but will include a variable portion, with incentives and penalties, of up to 10% of the total fee, calculated according to progress with the strengthening program. The delegated management fees will include a fixed portion to partially cover the operator's direct

costs, and a variable portion according to progress in meeting the financial and operational management targets. These variable fees, the parameters for which will be calculated as part of the bidding process, will be covered in both cases with internally generated resources and will be verified semiannually by the technical-financial consultant hired to independently monitor the contract.

5. Tentative execution timetable

- 4.13 The tentative timetable for execution of the private operator contract, which represents the centerpiece of the program, is as follows: (i) December 1999, delivery of draft management and service components for the service/management contract; (ii) February 2000, contract concluded with the firm to conduct the bidding process for the service/management contract; (iii) June 2000, submission of bids; and (iv) July 2000, signature of the contract with the private operator selected.
- 4.14 The tentative timetable for hiring the consultants to support the strengthening program is as follows: (i) July 2000, program audit; (ii) May 2000, quarterly review of ENACAL accounts; (iii) October 2000, technical assistance for the transformation of ENACAL into a corporation; and (iv) November 2001, preparation of the INAA sector development plan.

6. Goals of the business strengthening program

- 4.15 The overall goals of the service component include timely execution of the assigned tasks in accordance with the technical specifications, and compliance with the specific operational targets:

Table VI-1

National parameters for ENACAL	Year 0	Year 1	Year 2	Year 3
Volume of unmetered water (cumulative reduction as a percentage of the baseline volume)	-	-1%	-3%	-5%
Metering rate (% of connections with meter)	65%	67%	70%	72%
New meters installed annually	-	10,000	12,000	10,000
Net increase in billing in US\$*	-	+5%	+10%	+15%

- 4.16 For the delegated management component in León and Chinandega, the management efficiency goals will be determined contractually and subject to penalties for noncompliance. The operator will receive a substantial portion of its remuneration in variable form based on the financial impact of its performance.

Table IV-2

Operational goals for the delegated management contract	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Volume of unmetered water (cumulative reduction as a percentage of the baseline volume)	-	-1%	-3%	-5%	-7%	-9%
Metering rate (% of connections with meter)	73%	75%	80%	85%	90%	95%
New meters installed annually	-	2,000	3,000	4,000	5,000	6,000
Net accumulated collection in US\$*	-	+4%	+8%	+12%	+15%	+18%
Employees / 1,000 users	6.6	6.3	6.0	5.5	5	4

* Net increase in billing/collection resulting from rate adjustments and the historic average for the last 3 years.

C. Execution of the marginal settlement connections subprogram

- 4.17 ENACAL will be responsible for direct contracting of the connection works in each settlement under the multiple-works modality. To administer the community promotion and microlending component, ENACAL will enter into a permanent technical assistance contract with a specialized consulting firm. The consulting firm will be responsible for managing the component, including design of the campaigns, agreements with the NGOs, microlending procedures, and supervision of the NGOs in the field.
- 4.18 In each settlement, before contracts are concluded for the connection works (to be cofinanced by OPEC), it must have been confirmed that: (i) property ownership has been regularized and a positive decision has been issued by municipal urban authorities; (ii) a hydraulic analysis has been conducted for the existing systems to demonstrate the technical feasibility of the interconnections proposed, ensuring that the operation of the main system will not be affected; and (iii) the economic feasibility of the projects in each settlement has been determined, comparing the connection costs with the benefits calculated in the economic contingent valuation analysis under chapter 5B.
- 4.19 The promotion and microlending component will employ a mechanism similar to that used in the European Union cooperation program (paragraph 1.46). In order to finance the microloans to users for household facilities, a revolving line of credit will be opened in ENACAL's name with a local commercial bank, where the funds concerned will be deposited. The decision concerning each microloan will be made by a credit committee headed by the consulting firm under the supervision of ENACAL. The committee will include the NGOs and representatives from each community. Bank approval of the operating regulations for the microfinancing lines

of credit will be a condition precedent to disbursement of the financing for this component.

- 4.20 The NGOs retained for each settlement will be responsible for the following work in the field: (i) the community promotion and education campaigns, emphasizing the benefits of the proposed works; (ii) organization of household facility installation; and (iii) the management and collection of individual debts, depositing the funds collected in the bank account for the project.
- 4.21 Each NGO will be supervised by the consulting firm and will be remunerated for administering the microloans based on the actual rate of collection, using a process already implemented successfully by ENACAL for a similar project conducted with European cooperation. As it is replenished with microloan reimbursements, the revolving line of credit will continue to be used for similar operations in other marginal settlements until the program is completed.

D. Tentative timetable for program expenditures

- 4.22 The tentative timetable for expenditures is as follows:

Table IV-3

Amounts (thousands of US\$)	2000	2001	2002	2003	Total
Service contract	1,000	3,000	2,500	1,500	8,000
Delegated management in Léon	1,200	2,000	600	200	4,000
Other consultancies	300	400	500	300	1,500
Marginal settlement connections	2,000	2,000	1,500	500	6,000
Total	4,500	7,400	5,100	2,500	19,500

E. Conditionalities

1. Special contractual conditions

- 4.23 Prior to the first disbursement of resources, ENACAL must present evidence, to the satisfaction of the Bank, that: (i) an agreement between the borrower, ENACAL, and INAA has been signed establishing their respective obligations for execution of the program, the means by which the borrower will transfer financing resources to the INAA on a nonreimbursable basis (sector development plan), and the means by which the borrower will transfer the financing resources to ENACAL in the form of a loan under financial conditions similar to those for the Bank loan; (ii) the customer rate adjustment plan established in INAA resolution 002 of June 26, 1998, has been applied; and (iii) an external financial auditing firm has been hired for preparation of the quarterly review of ENACAL accounts.

- 4.24 Once the general conditions established in paragraphs (a), (b), (e), and (f) of Article 4.01 of the General Norms have been fulfilled and the funds-transfer agreement between the borrower and ENACAL has been presented, the Bank may disburse up to US\$250,000 to enable ENACAL to fulfill the conditions precedent.
- 4.25 For the disbursement of resources in excess of US\$600,000 under the business strengthening subprogram, ENACAL must present evidence that a service/management contract has been signed with a private operator and that an auditing firm has been hired to monitor that contract.
- 4.26 To be eligible for an initial disbursement of US\$300,000 for the marginal settlement connection subprogram, ENACAL must present evidence that the loan agreement with OPEC for cofinancing of the works has been signed. For disbursements beyond that amount, ENACAL must provide: (i) evidence that a specialized consulting firm has been hired to administer the promotion and microfinancing component for household facilities; and (ii) the credit regulations for microloans to be provided to users subject to prior Bank approval.

2. Conditions with respect to execution

- 4.27 The borrower must fulfill the following conditions during execution of the program: (i) the management/service contract with the private operator must be executed in accordance with the terms established therein; (ii) the rates for service must be applied so as to ensure, at a minimum, income sufficient to cover the costs of operating the systems (including administration, operation, maintenance, investment, and debt service) in accordance with INAA decree 45 of June 23, 1998, and resolution in 001 of August 7, 1998, governing how water supply and sewerage rates are set; and (iii) ENACAL must remain, at a minimum, within the following parameters: no more than 6.5 employees (regular and temporary) per 1,000 water supply connections; and a collection rate no lower than 85%.

F. Program monitoring

- 4.28 The borrower must fulfill all of the usual Bank requirements. Audited financial statements for ENACAL and the program will be presented by the borrower within 120 days after the close of its fiscal period.
- 4.29 To permit monitoring of the service/management contract, the borrower must also furnish the Bank with: (i) the financial statements of the company especially incorporated in Nicaragua by the international operator to execute the contract; and (ii) the technical-financial audit reports of the consulting firm hired to monitor execution and fulfillment of goals under the program and service/management contract.
- 4.30 To permit monitoring of the component for education and household connections in marginal settlements, ENACAL must submit a report semiannually on the project's

progress in each of the selected settlements and on the use of the revolving line of credit for the microloans.

- 4.31 On a quarterly basis, ENACAL must undergo an external review of its general accounts by a leading independent firm of public accountants approved by the Bank within the framework of this program. Each review will be concluded with a report to be submitted to the Bank.
- 4.32 The monitoring will include two comprehensive program evaluations – the first two years after the effective date of the loan contract, or upon disbursement of 50% of the financing for subprogram I, whichever comes first, and the second 60 days prior to the final disbursement – to determine the impact and benefits of the program with respect to sector development and performance in administering the services. These evaluations will cover both the business strengthening and marginal settlements connection subprograms and will be conducted by the technical-financial consulting firm responsible for monitoring the service/management contract (program audit).
- 4.33 The project does not specify explicit performance benchmarks for poverty reduction or social equity enhancement.

G. Procedures for the procurement of goods and services

- 4.34 The procurement of works, goods, and services will be subject to Bank procurement and contracting procedures. International public bidding procedures will be used for works contracts in excess of US\$1 million and goods and service contracts in excess of US\$150,000. For lesser amounts, national laws will apply.
- 4.35 Bidding on the international operator service/management contract will be conducted in accordance with the procedures defined in the paragraphs above. Given the nature of the contract – which combines: (i) technical assistance services; (ii) the supply of computer equipment and systems on a turn-key basis; and (iii) delegated management of services – there will be a prequalification phase followed by an evaluation of bids based on a formula combining technical and economic criteria. Prequalification will be reserved for operators with experience in urban water systems for a combined total of at least 200,000 users, as well as extensive experience in installing and managing computer systems for commercial management.
- 4.36 For the business strengthening subprogram, the use of operating funds that are not included in the budget for the operator – i.e.: (i) the procurement of equipment and works to support the metering and sector delineation plan; and (ii) the additional sum for the MRM fund under the delegated management component – the operator will only prepare the bidding for ENACAL, and Bank procedures will apply to the purchase of goods.

- 4.37 Given that the operator selected would have an advantage in winning any future contracts of broader scope, it would be necessary, as part of the phased-in strategy proposed for private sector participation, for bidding on the service/management contract at this stage to be conducted so as to maximize competition between firms. Considering the sector's high degree of concentration among a very limited number of private international operators, a special exception to current Bank policy (GS-206) is recommended to allow related firms (with common shareholders accounting for an interest greater than 5%) to submit separate bids for the service/management contract. Such exception would not apply, however, to related firms in which: (i) the share held by one of the bidding firms represents a controlling interest in the other bidding firm; and/or (ii) one of the bidding firms controls another bidding firm by virtue of a shareholders agreement or other means, or management of the two firms has been effectively delegated to a same third party.
- 4.38 Similarly, to keep the contract attractive to major international firms, another exception should be allowed to explicitly authorize the operator selected for the contract to participate without restriction in future bidding for the management of ENACAL services at the national as well as regional levels.

V. FEASIBILITY AND RISKS

A. Technical and institutional feasibility

5.1 Based on the consultancies and evaluations commissioned by the project team in preparing this operation, the various components of the program can be considered feasible under the terms and for the period specified; in particular:

- a. The national-level service component: In the design of this contract, consideration was given to the strengths and weaknesses inherent in not delegating management to the operator. The business strengthening activities were also structured on the basis of their feasibility and short-term potential impact on operating results. In addition, the operator fees for this component will include a combination of bonuses and penalties as incentives.
- b. Delegation of management in León and Chinandega: The favorable situation of water supply and sewerage systems in the area concerned should facilitate successful implementation of this pilot project for the private management of public services in the country. The supplemental financing provided by the loan for the first three years of the contract will also contribute to the viability of this experience, particularly with financing for a modernization plan to improve the quality of service.
- c. Connections in marginal settlements of Managua: The connection works to be performed by ENACAL do not present any particular complexity and have been designed in accordance with established standards. The settlements concerned were initially selected based on the feasibility of connection without reinforcement of the main system. The NGOs' education and promotion activities will help to broaden community support for the program and increase its beneficial impact.

It should be noted that the production capacity of the water supply system in Managua has recently been expanded with a grant from the Japanese International Cooperation Agency (JICA) for a new field of 30 MGD wells (US\$26 million), which should ensure sufficient water availability to expand service in these marginal settlements.

B. Economic feasibility

5.2 A specific economic evaluation was made of the component for multiple connection works in marginal settlements, with the objective of establishing a procedure permitting the benefits and economic feasibility of the projects in each settlement submitted for program financing to be easily estimated.

- 5.3 The main benefit of the water supply investments will be an improvement in the current level of service, where there are significant problems (poor water quality, low pressure, supply restricted to certain hours).
- 5.4 The main benefit of the sewerage investments would be to remove sewage from residential areas. Most households in these marginal settlements have developed individual solutions – mainly septic tanks and latrines – but do not have plumbing for the disposal of other sewage.
- 5.5 To gauge the benefits that would result from the water supply and sewerage connections, a survey of 420 households was conducted in the target areas using the contingent valuation methodology, with two options for the question on "willingness to pay".
- 5.6 The amount that each household would be willing to pay monthly for each system has been estimated at C\$42.85 (US\$3.57) for water supply and C\$38.55 (US\$3.21) for sewerage. These benefits must be corrected by subtracting the incremental cost of operating the systems relative to the existing solutions, estimated at approximately US\$0.25/month/connection. This results in a figure of US\$39.84/household/year for the benefits of connection to the water supply system, and US\$35.52/household/year for the benefits of connection to the sewerage system.
- 5.7 These results indicate that, with projected zero growth in the number of connections over the planning horizon and a 12% discount rate, the maximum acceptable cost per connection, at market prices, is US\$370 for water supply and US\$330 for sewerage.
- 5.8 The benefit of installing water supply meters is approximately US\$0.61/connection/month (based on average consumption of 20 cubic meters/connection/month, a rate of US\$0.2/cubic meter, and price elasticity of -0.3). This figure indicates that the present value of the benefits of this investment for a 12% annual discount rate, is US\$59 per connection. This amount must be adjusted by subtracting the cost of operation (readings), estimated at US\$2/year, resulting in a net benefit from meter installation of US\$43 per connection. The maximum acceptable amount per metered water supply connection would then be US\$413.

C. Financial feasibility

- 5.9 As shown in chapter III, with the real increase in rates under the rate adjustment plan ENACAL is currently in a very favorable financial situation. ENACAL's capacity for self-financing should continue to improve over the short term with the continuation of this plan (CMLP) through 2000 and beyond. Its overall borrowing

capacity will enable it to absorb the new loan proposed in this operation without difficulty.

- 5.10 It must be recalled that one of the main objectives of this program is to improve ENACAL's financial situation, and in particular to: (i) increase billing nationally (by renovating computer systems and reducing the volume of unmetered water); (ii) increase earnings in Léon and Chinandega under private management; and (iii) broaden the customer base with the expansion of service in the marginal settlements of Managua. It is estimated that the net impact of the program on collection levels should easily exceed US\$10 million for the first three years alone.
- 5.11 It is difficult at the present time to anticipate how ENACAL's future income will be affected by the final rate adjustments planned for 2000-2001 (a transparent mechanism for subsidizing the poor during 2000, and the application of rates based on the CMLP methodology starting in 2001). Nonetheless, the financial projections prepared to analyze the impact of the business strengthening program indicate sustained growth over the next few years in the internal generation of funds and self-financing capacity, which would free up more resources for investment. This would in particular make resources available for ENACAL to undertake new priority works, which could be identified during execution of the service/management contract with the operator.
- 5.12 For the delegated management contract in Léon and Chinandega, the financial projections prepared to structure this contract are summarized in the following table. The financial sustainability of the Léon and Chinandega pilot project and the availability of funds for the operator appear to be ensured by the high levels of net cash flow. The gradual positive impact of private management on net income from these services (despite the necessary increase in maintenance, replacement, and modernization costs to improve the quality of service) will also permit improvements in ENACAL's self-financing capacity to finance other regions.

Financial projections (US\$ millions)	1999	2000	2001	2002	2003	2004
Income	9.4	11.0	11.5	12.1	12.6	13.2
Operating costs	2.9	3.0	3.1	3.2	3.3	3.4
Lump sum fee	--	0.8	0.6	0.4	0.3	0.3
Maintenance and replacement (MRM fund)	1.3	3.7	2.5	2.5	2.5	2.7
Operating balance	5.2	3.5	5.3	6.0	6.5	6.8
Investments in system expansion	0.8	0.8	0.8	0.8	0.8	0.8
IDB contribution	0	2.5	1.1	0.4	0	0
Net cash flow (before factoring in the variable fees)	4.4	5.2	5.6	5.6	5.7	6.0

(projections in constant 1999 dollars, with the contract running from the start of 2000)

D. Legal feasibility

- 5.13 Under current law, the president of ENACAL has legal capacity and authority to hire a private operator under the service/management contract proposed in this program.
- 5.14 According to decree 47-98, ENACAL can create independent companies, subject to its authority and strategic planning, in any part of the country. By virtue of these powers, ENACAL issued an agreement to create regional water supply and sewerage companies in León and Chinandega (ENACAL West), which is now pending publication in the Daily Gazette.
- 5.15 An approach successfully introduced and tested by ENACAL in a cooperation program with the European Union will be used in executing the subprogram to expand service in marginal settlements and provide household facility financing.

E. Environmental and social feasibility

- 5.16 The program is considered feasible from an environmental point of view since the activities proposed would have a positive impact on the environment.
- 5.17 The components for works in marginal settlements of Managua would have a positive environmental impact by helping to solve the sanitation problems caused in these neighborhoods by inadequate sewerage facilities. Sewage removal from these areas will not have an adverse environmental impact, given that the design of sewage treatment plants to be constructed under another Bank program (NI-0027) has taken this factor into account.
- 5.18 The investments in support of the management contracts in León and Chinandega are small and limited to modernization (purchase of equipment, training), and do not entail any civil works with potential environmental or social impact.
- 5.19 The connection works in marginal settlements of Managua will adhere to the construction standards agreed to during the course of the negotiations on the Managua sanitation program NI-027, which are designed to minimize risk and inconvenience.

F. Risks of program execution

- 5.20 A lack of interest among operators could preclude the signature of a contract (or result in excessively high cost). Institutional weaknesses within the counterpart agency (or political interference) could limit the impact of the business strengthening program. *Mitigation:* selection of a major operator with extensive experience in developing countries is essential to the program's success. The management/service contract has been designed to be attractive to major private operators: (i) significant scale with limited economic risk; (ii) the combination of

service activities with management delegation at the regional level; (iii) provisions for consultation with key stakeholders to finalize the specifications; and (iv) a strategic platform for the winning operator in the event of future privatization.

- 5.21 Conflicts between the operator and ENACAL: the viability of the strategy for greater private-sector participation over the medium term depends on partnership and continuous cooperation. *Mitigation*: special care is being taken in preparing the contractual documents, to be produced jointly by four consultancies. The contract will be monitored independently through a program audit, which could facilitate arbitration.
- 5.22 Connections in marginal settlements: there is a risk of local resistance in certain neighborhoods. *Mitigation*: the program is structured around education and promotion campaigns, with individual financing for household plumbing, which should facilitate community support. A mechanism tried and tested in the field for a similar ENACAL program, with European cooperation, will be used. The modest size of this pilot project (4,000 households), will make it possible to concentrate on neighborhoods where community support is greatest.

LOGICAL FRAMEWORK

WATER AND SEWERAGE MODERNIZATION PROGRAM (NI-0097)

Objectives	Indicators	Monitoring	Requirements
of the sector reform process designed for the service ENACAL.	Application of the INAA rate adjustment plan. Sustainable improvement in the coverage, efficiency, and quality of service.	Annual monitoring by the INAA on the basis of general benchmarks. Program audit of ENACAL's operational performance.	Continuous support for the process from authorities and Institutional stability.
Support to strengthen through priority activities. Strategy for private sector Address the problems of in marginal settlements.	Increase in the level of internally generated funds. Improvement in the quality of information. Incorporation of a major international operator within ENACAL. Execution of a pilot program to expand and rehabilitate connections.	ENACAL financial statements and quarterly audits. Program audit of the business strengthening program. Reports from the consultant responsible for managing the NGOs.	Support from ENACAL strengthening program. Support from the community concerned.
Strengthening program through a management contract with an operator. Sector development. Rehabilitation of water coverage services on a pilot settlements.	Complete renovation of computer systems. Plan to reduce the volume of unmetered water. Technical advisory assistance. Water supply and sewerage connections for 4,000 low-income families. Education and microfinancing campaigns for household facilities.	Program audit of the business strengthening program. Progress in executing the service/management contract Mid-term and ex post evaluations. Reports from the consultant responsible for managing the NGOs.	Support for the strategy from management and the authorities. Property regularization and decision from urban planning authorities. Support from the community concerned.

Business strengthening subprogram (US\$13.5 million)			
Objectives	Indicators	Monitoring	Requirements
Strengthening of ENACAL.	Coverage and quality of water supply and sewerage services.	Annual monitoring of general benchmarks by the INAA.	Support for the program from authorities.
Improvements in operating and the process of sector reform level.	Improvement of ENACAL's operating and financial situation. Application of the rate adjustment plan according to schedule.	Program audit of ENACAL's operational performance. ENACAL financial statements and quarterly reviews.	Cooperation from ENACAL n Institutional stability.
Management contract with a Assistance (support and	Award and execution of the service/management contract. Fulfillment of contractual objectives by the operator. Execution of the consultancies according to schedule.	Bidding specifications and report. Semiannual program audit reports. Quarterly audit reports.	Success in awarding the contract operator. Expeditious contracting for the consultancies.
Business modernization at ing of the management g the initial years. ank for the international s. Assistance with transformation ion. r sector development.	New systems installed. Customer register 100% updated in the field. Metering rate of 75% at the national level and 95% in León. 5% reduction in the volume of unmetered water at the national level and 9% reduction in León. 15% net increase in billing at the national level; 18% increase in collection in León. Execution of technical assistance. Preparation of the master plan (INAA) Transformation of ENACAL into a corporation in 2001.	Fulfillment of the service contract on schedule and in accordance with technical specifications in the contract. Monitoring of ENACAL's operating performance through program audit reports. Financial statements on ENACAL West (delegated management). Execution of the modernization plan. Articles of incorporation for ENACAL. Discussion with authorities on the next stage of sector reforms.	Effective cooperation between and the operator. Smooth relations between the employees, and users. The availability of cash for the fund. Support from authorities for private-sector participation.

Subprogram for connections in marginal settlements (US\$6 million)			
Objectives	Indicators	Monitoring	Requirements
Service in the marginal settlements in Managua.	Connection and incorporation as regular ENACAL customers of 4,000 low-income households.	Annual monitoring of benchmarks by the INAA.	Social and political stability. Support for the program from staff.
Service delivery in the settlements. Connection program in the city.	Acceptance of the program within the communities concerned. Level of actual customer connections with the sewerage system.	Annual program execution reports.	Careful selection of settlements for the program. Effective identification of NGOs in the field.
Land and sewerage connection promotion program.	Execution of the works in the selected settlements. Hiring of a specialized consultancy to administer and design the NGO agreements.	Review of eligibility requirements for the selection of settlements. Review of reports from the management consultant.	Support from residents in the selected settlements. Expeditious hiring of the consultancy.
Land regularization and expansion of service coverage. Promotion campaigns. Investment for household facilities.	Execution of the works in the selected settlements. Individual visits to users in each settlement. Installation of facilities in 1,800 households.	Monitoring of works in the field. Reports on visits and individual surveys. Report on use of the revolving line of credit.	Regularization of land ownership and clearance by urban planning authorities. Efficient promotion and management of the revolving line of credit.

TENTATIVE PROCUREMENT PROGRAM

Main components	Financing			Methodology	Prequalification	Estimated start
	IDB	Local	OPEC			
Strengthening subprogram						
Management contract with an operator	90%	10%	–	ICB	YES	July 2000
Technical assistance for contract support:					–	
Bank to conduct the bidding and manage the service/management	95%	5%	–	ICB	YES	February 2000
Financial audits	75%	25%	–	ICB	YES	March 2000
Review of accounts	85%	15%	–	Expanded TOR*	–	February 2000
Technical assistance for the transformation of a corporation	85%	15%	–	ICB	YES	October 2000
Water sector development (INAA)	100%	0% (INAA)	–	ICB	YES	November 2000
Program for water supply and sewerage connections in marginal settlements						
Works on a multiple-works basis		5%	95%	ICB if over US\$1 million	YES	Early 2001
Administer promotion of NGOs	60%	40%	–	ICB	YES	March 2001

National competitive bidding

of the terms of reference for the firm hired for annual certification of the financial statements.

PROPOSED RESOLUTION

NICARAGUA. LOAN No. ____/ SF-NI TO THE REPUBLICA DE NICARAGUA.

(Modernization of the Management of Water and Sanitation Services Program)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the República de Nicaragua, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a Modernization of the Management of Water and Sanitation Services Program.

Such financing will be for the amount of up to US\$13,900,000, or its equivalent in other currencies, except that of Nicaragua, which are part of the resources of the Bank's Fund for Special Operations, and will be subject to the "Special Contractual Conditions" and to the "Financial Terms and Conditions" of the Executive Summary of the Loan Proposal.