

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**NICARAGUA**

**WATER SUPPLY AND SANITATION INVESTMENT PROGRAM**

**(NI-L1017)**

**LOAN PROPOSAL**

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## TABLE OF CONTENTS

### PROJECT SUMMARY

I.	FRAME OF REFERENCE .....	1
A.	Socioeconomic context .....	1
B.	Water and sanitation sector .....	1
C.	Modernization of the management of water and sewerage services program (loan 1049-SF/NI) .....	2
D.	ENACAL .....	4
E.	The Bank's strategy with Nicaragua .....	6
F.	Government strategy in the sector .....	6
G.	Bank strategy in the sector .....	6
H.	Coordination with other donors .....	7
I.	Complementarity with other operations in preparation or in execution .....	8
J.	Experiences and lessons learned .....	8
K.	Program strategy .....	9
II.	THE PROGRAM .....	11
A.	Objectives and description .....	11
1.	Component 1: Emergency plan .....	11
2.	Component 2: Business strengthening .....	11
3.	Component 3: Rehabilitation and optimization of water and sanitation systems .....	12
B.	Costs and financing .....	13
III.	PROGRAM EXECUTION .....	15
A.	Borrower and executing agency .....	15
B.	Program execution and management .....	15
C.	Eligibility criteria .....	16
D.	Performance indicators .....	16
E.	Accounting-financial management and audit of the program .....	18
F.	Revolving fund .....	19
G.	Procurement of goods and services .....	19
H.	Execution period and disbursement calendar .....	20
I.	Monitoring and evaluation .....	20
J.	Operation and maintenance .....	20
K.	Compilation of data .....	21
IV.	FEASIBILITY AND RISKS .....	22
A.	Institutional feasibility .....	22
B.	Socioeconomic feasibility .....	22
C.	Financial and rate feasibility .....	23
D.	Technical feasibility .....	27
E.	Environmental and social feasibility .....	28
F.	Risks .....	29

## ANNEXES

Annex I      Logical framework

## APPENDICES

Proposed resolution

### Electronic Links and References

Basic socioeconomic data	<a href="http://www.iadb.org/res/externallink_list.cfm?language=en&amp;parid=1&amp;item1id=1&amp;detail=Box1#b1">http://www.iadb.org/res/externallink_list.cfm?language=en&amp;parid=1&amp;item1id=1&amp;detail=Box1#b1</a>
Information available in the RE2/EN2 files	<a href="http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=797319">http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=797319</a>
Annex II Procurement plan	<a href="http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=787324">http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=787324</a>

## ABBREVIATIONS

CONAPAS	Comisión Nacional de Agua Potable y Alcantarillado Sanitario [National Water and Sewerage Committee]
ENACAL	Empresa Nicaragüense de Acueductos y Alcantarillados [Nicaraguan Water and Sewerage Company]
FISE	Emergency Social Investment Fund
ICD	Incremental Cost of Development
INAA	Instituto Nicaragüense de Acueductos y Alcantarillados [Nicaraguan Water Supply and Sewerage Institute]
KfW	German Development Bank
MDG	Millennium Development Goals
NDF	Nordic Development Fund
OPEC	Organization of Petroleum Exporting Countries
PEU	Project Executing Unit
SECO	Swiss Ministry of the Economy
SWAp	Sector-wide Approach
WHO	World Health Organization

## PROJECT SUMMARY

### NICARAGUA WATER SUPPLY AND SANITATION INVESTMENT PROGRAM (NI-L1017)

Financial Terms and Conditions <sup>1</sup>					
Borrower: Republic of Nicaragua Executing agency : Empresa Nicaragüense de Acueductos y Alcantarillados [Nicaraguan Water and Sewerage Company] (ENACAL)				Amortization period:	40 years
				Grace period:	10 years
<b>Source</b>	<b>Amount</b>	<b>% program</b>	<b>% SECO confinancing</b>	Interest rate:	1% during grace period, 2% thereafter
IDB (FSO)	US\$30,000,000	98	76	Credit fee:	0.5%
Local	US\$600,000	2	2		
<b>Total program</b>		<b>100</b>		Inspection and supervision fee:	1%
Parallel financing (SECO) <sup>1</sup>	US\$8,700,000		22	Currency:	U.S. dollars from Fund for Special Operations (FSO)
<b>Total with SECO<sup>1</sup> financing</b>	<b>US\$39,300,000</b>		<b>100</b>		

#### Project at a glance

**Program objective:**

The objective of the program is to improve the living conditions of the people of Nicaragua by improving ENACAL's management in terms of the efficiency, quality, and sustainability of the water and sanitation services it provides. To that end, the program seeks to improve the company's technical, operational, commercial, and financial management, with a results-based management approach, in the context of the company's services contract, while also rehabilitating and optimizing water services in the country's intermediate cities.

**Special contractual conditions:**

Special conditions precedent to the first disbursement: (i) signing of the transfer and execution agreement between the borrower and ENACAL (see par. 3.1); (ii) staffing of a project executing unit (PEU) and assignment of the necessary responsibilities to execute the program (see par. 3.2); (iii) approval and implementation of the Operating Manual (see paragraph 3.3); and (iv) entry into force of the addendum to the concession agreement between ENACAL and Instituto Nicaragüense de Acueductos y Alcantarillados [Nicaraguan Water Supply and Sewerage Institute] (INAA) (see par. 3.6). ENACAL will begin arranging for the commitment of the proceeds of the financing for eligible projects in component 3 (Rehabilitation and optimization of water supply and sanitation systems) to an cumulative maximum of 50% of the financing when, in addition to the special conditions precedent, the following documents have been presented to the Bank's satisfaction: (i) the independent auditor's report certifying that ENACAL's cost coverage ratio is equal to or greater than 0.93; (ii) for the remaining 50% of the financing, the independent auditor's report certifying that ENACAL's cost coverage ratio is equal to or greater than 1.06 and its investment in expansions in low-income areas is at least C\$40 million (forty million cordobas) (see paragraph 3.7); and (iii) the action plan approved by ENACAL based on the recommendations of the program-financed costs and rates study (see paragraph 4.15)

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<sup>1</sup> See paragraph 2.7

**Exceptions to Bank policies:**

None.

<b>Project consistent with country strategy:</b>	Yes [ X ]	No [ ]			
<b>Project qualifies as:</b>	SEQ [ X ]	PTI [ ]	Sector [ ]	Geographic [ ]	Headcount [ ]

**Verified by CESI on:** 30 June 2006

<sup>1</sup> The interest rate, credit fee, and inspection and supervision fee mentioned in this document are established pursuant to document FN-568-3 Rev. and may be changed by the Board of Executive Directors, taking into account the available background information, as well as the respective Finance Department recommendations. In no case will the credit fee exceed 0.75%, or the inspection and supervision fee exceed 1% of the loan amount.\*

\* With regard to the inspection and supervision fee, in no case will the charge exceed, in a given six-month period, the amount that would result from applying 1% to the loan amount divided by the number of six-month periods included in the original disbursement period.

## I. FRAME OF REFERENCE

### A. Socioeconomic context

- 1.1 Nicaragua is the second-poorest country in Latin America after Haiti, with poverty and extreme poverty rates of 45.8% (2001) and 15.1%, respectively. In 1990, the population of Nicaragua was 3.8 million, with 53% residing in urban areas and 47% in rural areas.<sup>1</sup> By 2002, the population had increased to 5.3 million, with 57% and 43% living in urban and rural areas, respectively.<sup>2</sup> By 2015, the total population is projected to reach 7 million, of which 4.4 million will be living in urban areas.<sup>3</sup> If this trend continues, by 2015 the urban/rural population ratio is expected to be 63%/37%.<sup>4</sup> Of the 5.4 million inhabitants registered in 2004, 52.7% are under the age of 19. The country's epidemiological profile shows that morbidity and mortality caused by water-borne diseases are due, among other causes, to low levels of water and sanitation coverage. This is the result of high levels of poverty, with the most severe effects being felt in the rural and periurban areas around Nicaraguan cities.

### B. Water and sanitation sector

- 1.2 In 2004, the Nicaraguan population was concentrated in 189 urban cities and approximately 5,000 rural communities. ENACAL is the main supplier of water and sewerage services in Nicaragua, administering 147 separate urban and rural systems. This institutional scenario is complemented by three decentralized companies in the departments of Matagalpa, Jinotega, and Río Blanco, which together administer nearly 20 systems.<sup>5</sup> These systems are administered by private companies through delegated management contracts. Lastly, 26 small municipalities administer an equal number of water systems, and nearly 5,000 water committees operate independently a similar number of rural water supply systems with support from the Emergency Social Investment Fund (FISE), which has been responsible for coordination and financing since 2005.
- 1.3 Nicaragua has achieved 76% water supply coverage (2004 national average). The urban and rural averages are 95% and 48%, respectively. Sewerage coverage is 35%. CONAPAS estimates that just 42% of wastewater receives some form of treatment.

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<sup>1</sup> World Health Organization (WHO). Global Water Supply and Sanitation Assessment 2000 Report.

<sup>2</sup> Joint Monitoring Program Report, 2004, WHO and the United Nations Children's Fund (UNICEF).

<sup>3</sup> Human Development Report, United Nations Development Programme (UNDP), 2004.

<sup>4</sup> Source: Comisión Nacional de Agua Potable y Alcantarillado Sanitario [National Water and Sewerage Committee] (CONAPAS), Nicaragua.

<sup>5</sup> With the exception of the Municipio of Río Blanco where the municipio directly administers the utility, these systems are owned by ENACAL. However, they are privately run with assistance provided to Nicaragua by the German Development Bank (KfW).

- 1.4 With the support of the Bank and other donors, in the last decade of the 20<sup>th</sup> century, the Government of Nicaragua undertook reforms in the water and sanitation sector with a view to creating a modern legal and institutional framework that separated the business function from the regulatory and planning functions. As a result, the country now has a group of independent entities, in addition to an effective regulatory framework.
- 1.5 Under the new institutional framework, four national entities are responsible for the sector's functions: (i) **CONAPAS**: in charge of policy making, planning, and acting as the sector's lead agency; (ii) **INAA**: responsible for the regulation of companies through *concession agreements*;<sup>6</sup> (iii) **ENACAL**: mainly in charge of providing services in urban areas; and (iv) **FISE**: responsible for policy enforcement and project execution in rural areas.

**C. Modernization of the management of water and sewerage services program (loan 1049-SF/NI)**

- 1.6 The Bank has actively supported reform in this sector with three operations (i) the *Public Utilities Reform Program* (loan 933/SF-NI) financed the creation of CONAPAS, ENACAL, and INAA, (ii) technical-cooperation project ATN/MT-7187-NI assisted with the development and adoption of the sector's current regulatory framework;<sup>7</sup> and (iii) the *Modernization of the Management of Water and Sewerage Services Program* (loan operations 1049/SF-NI and 819/OP-NI approved in 1999 with cofinancing from the Organization of Petroleum Exporting Countries (OPEC)<sup>8</sup>) was the main vehicle behind ENACAL's sector reform. The financing in the amount of US\$21 million was contributed by the IDB (US\$13.9 million) and OPEC (US\$5 million).
- 1.7 The objectives of the modernization program in progress were to support short-term modernization of ENACAL, giving priority to activities that improve operational efficiency through a business strengthening program, and to help resolve the problems associated with providing water and sanitation service in Managua's poor and illegal settlements.

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<sup>6</sup> This is the name used in Nicaraguan legislation to refer to the regulatory contract between service providers and the regulator, which defines efficiency criteria that must be met by companies and rate-setting principles.

<sup>7</sup> This includes a rate analysis of the long-term average incremental cost (incremental cost of development) (ICD).

<sup>8</sup> Seventy-seven percent (77%) committed and 19% disbursed. The low level of disbursement is justified because program resources are used to pay the cost of the services contract over three years, beginning in 2006 (US\$10 million).



- 1.8 To achieve its proposed objectives, the program was divided into two subprograms: (i) institutional strengthening of ENACAL through a three-year services contract with an international operator; and (ii) a pilot program to improve and expand services in Managua's marginal settlements by financing water and sewer connections.
- 1.9 This operation was approved by the Bank in 1999. The objective of the first subprogram in the amount of US\$13.5 million was to modernize administration of the utility company under an operator contract. The subprogram consisted of two components: (i) a services component for the institutional strengthening of ENACAL at the national level; and (ii) a delegated management component in one region of the country (León and Chinandega). The services component (US\$8 million) included: (i) replacement of all of ENACAL's computer equipment; (ii) a plan to reduce unbilled water; and (iii) additional technical assistance. The management component delegated the management of water and sanitation services in the municipalities of León and Chinandega to the operator for five years. The strengthening program also included several consulting assignments and technical assistance for structuring private sector participation, as well as the monitoring and audit of contract performance and quarterly reviews of ENACAL's financial statements. The program further included the financing of two consulting assignments: one to support the transformation of ENACAL into a publicly-traded company, and the other to prepare a sector development plan under the responsibility of INAA. The second subprogram provided US\$6 million to finance water and sewer works in Managua's marginal areas that would benefit 4,000 households.
- 1.10 The strategy of gradually bringing the private sector into the modernization program was challenged. As a result, in 2003, the Nicaraguan Legislature passed Law 440, which redefined the terms of private sector participation in the country's water and sanitation sector. Article 2 of that law "*suspends the awarding of all concessions to private individuals for operation of ENACAL's facilities and assets, or the awarding of management contracts to private individuals*". In that same year, the Nicaraguan Legislature changed ENACAL's status from a "*state-owned business*" to a "*state-owned public utility*". In light of these legislative decisions, ENACAL and the Bank modified the scope of the first subprogram. Specifically, they agreed to eliminate the section of the contract on delegated management of the utility in León and Chinandega and to retain the *services contract* exclusively for the company, as specified in paragraph 1.9. The second subprogram is being executed as originally conceived.
- 1.11 In December 2005, ENACAL entered into a three-year services contract with a consortium led by an operator with international experience, which started activities in January 2006. The contract includes consulting assignments and technical assistance for the company, introduction of efficient procedures, creation of a user

registry, supply of computer hardware and software, procurement and installation of macro and micro meters, and the supply of equipment for unbilled water control.<sup>9</sup>

#### D. ENACAL

- 1.12 The services contract with the consortium is an important step toward improving ENACAL's management. In practice, however, the modernization program did not begin to be implemented until six years after it was approved (1999). During that period, the company made no substantive improvements. Consequently, the entity in general and its systems have deteriorated significantly, as summarized below:
- a. In the **financial area**, operating revenue is insufficient to cover growing operating expenses (negative gross margin of 9.7% in 2005).<sup>10</sup> Revenue grew 6% between 2004 and 2005, compared to a 38% increase in operating and maintenance expenses, due to the large increase in energy costs. Among other factors, this situation was caused by very poor **business management**, which shows rates of illegal connections of 18%, micro metering of 49%, and unbilled water estimated at 56%. These indicators suggest that the company has ample room to substantially increase its revenues without raising rates. However, the negative financial position is worsening due to a rigid cost structure in which energy and labor costs represent nearly 85% of total costs. The company has 6.5 employees for every 1,000 customers, which is nearly double the acceptable ratio for this type of company (i.e. three to four employees).
  - b. **Rates** are high relative to the average income in the country.<sup>11</sup> This situation, together with the inefficiencies described, has resulted in periodic transfers from the government to the company to cover its deficits, and in a decision by the **regulator** to suspend rate hikes to prevent the company from passing its inefficiencies on to customers. That decision, while adversely affecting the company's already weak bottom line, shows the regulator is sending a message and providing effective incentives to improve management.
  - c. INAA is responsible for rate setting in Nicaragua, pursuant to Executive Order 45-98,<sup>12</sup> which says the incremental development cost (IDC) (see Table IV-2) should be the general criterion for setting water and sewer rates, and

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<sup>9</sup> See full contract:

<http://enet.iadb.org/idbdocswebservices/idbdocsInternet/IADBPublicDoc.aspx?docnum=643035>

<sup>10</sup> Financial and compliance audit <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=730343>

<sup>11</sup> If we assume an average monthly salary of 1,629.80 Nicaraguan cordobas (December 2005), a single-income family would need to allocate 7.85% of that amount to pay for water services (a recommended acceptable indicator is 3% of income).

<sup>12</sup> Executive Order 45-98 <http://www.inaa.gob.ni/>

established a rate structure with cross-subsidies for three groups of customers: subsidized, residential, and producers of subsidies.

- d. In **operational** terms, the financial position has had a negative impact on the expansion of systems and infrastructure maintenance expenses. The services contract consortium reports that approximately 300,000 people receive no services because the systems lack equipment and basic requisites for service delivery (pumping equipment or spare parts), owing to widespread deterioration of the systems and insufficient funds for their replacement. Moreover, computer equipment and communication systems are outdated. The company's **IT systems** are also not reliable, and the different information areas, including finance, business, operations, and management, are not integrated.
  - e. The company's **planning** is consistent with the situation of the entity's other systems. ENACAL does not have a master plan to guide its work in the sector from a corporate perspective or in terms of investment in the systems. One of the tasks of the services contractor is to develop a master plan for the company, defining short-, medium-, and long-term development targets.
  - f. From an **organizational** standpoint, the company needs to make significant changes. There is overlapping of functions; responsibilities are not clearly defined; departments are highly fragmented; and nearly all processes are highly centralized. The services contract consortium has finalized the organizational diagnostic, and plans to present a formal proposal in October 2006 to reorganize the company, based on a detailed analysis of macroprocesses.
  - g. Lastly, from an **institutional standpoint**, although INAA acts as the main counterweight for ENACAL, in practice that entity has been unable to regulate the company effectively due to weaknesses in the main regulatory instrument (i.e. the *concession agreement*).
- 1.13 The services contract with the contractor is an ideal tool for ENACAL to identify the problems mentioned and resolve a significant number of them. However, due to slow implementation, actions and investments originally envisaged in the contract are no longer adequate to address the current situation because of delays, and further action is needed. The company's systems are in such a state of disrepair that some may become inoperable. Consequently, in addition to implementing the recommendations in the services contract and making the investments specified in that agreement, an emergency plan is needed immediately to bring back into service several systems that have become inoperable for the reasons discussed above, to rehabilitate a large number of them, and to the extent possible, to expand service to low-income areas now without coverage.

## **E. The Bank's strategy with Nicaragua**

- 1.14 The Bank's strategy with Nicaragua for 2002-2006 is designed to help the country develop activities to achieve the targets of the Enhanced Economic Growth and Poverty Reduction Strategy.<sup>13</sup> The Bank has identified three strategic approaches for attaining this objective: (i) economic growth, (ii) governance, and (iii) the productivity of the very poor. The present operation is consistent with this strategy insofar as it seeks to improve water and sewer service delivery, which would have a strong impact on public health and would promote actions to ameliorate governance while making ENACAL an efficient, effective, and sustainable company.

## **F. Government strategy in the sector**

- 1.15 Figures show that to achieve the Millennium Development Goals (MDGs), Nicaragua must make sizable investments in sustainability and expansion in order to increase coverage and bring water and sanitation services to nearly 2.5 million people. It is estimated that it could cost nearly US\$900 million (1.9% of GDP) to attain the MDGs related to urban water supply, wastewater treatment, and sewerage services, as well as rural water and sanitation services. However, the Government of Nicaragua is aware of the importance of improving the management of those services, while at the same time optimizing systems. So, with the help of the Bank and donor community, CONAPAS issued the Water and Sanitation Sector Strategy in 2005.<sup>14</sup> The strategy's main objective is to ensure sustainable services, with a focus on gender, demand, community participation, and environmental protection. It also targets low-income groups, productive conglomerates, and service delivery hubs. The strategy assigns responsibility for coordinating and financing investments in rural and urban areas to FISE and ENACAL, respectively. It proposes that the company's efficiency be increased through the modernization the services contract would bring, also proposing its deconcentration and possible decentralization.
- 1.16 The demand for resources for the sector is enormous and clearly exceeds internal financing capacity. ENACAL estimates that it will need at least US\$523 million to provide adequate services to the population it serves. Of that amount, Managua alone would require US\$136 million to operate its systems properly and expand coverage (not including wastewater treatment) to the entire population.

## **G. Bank strategy in the sector**

- 1.17 The Bank's strategy in the sector, which is shared by other donors in the country, supports the strengthening of agents directly associated with the sector: CONAPAS, the agency responsible for sector policy; INAA, the regulator;

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<sup>13</sup> As set out in document GN-2230-1 of February 2003.

<sup>14</sup> Water and Sanitation Sector Strategy. <http://www.iadb.org/regions/re2/water/nicaraguadocs.cfm>

ENACAL, the urban operator; and FISE coordinator and financier of the sector at the rural level, with the participation of the municipios and communities in managing their systems, following a demand approach.<sup>15</sup> In urban areas, the short-term strategy is to improve ENACAL through the Modernization Program. In the medium-term, the focus of the strategy is the company's possible deconcentration following criteria of economies of scale and process optimization.

- 1.18 One facet of the Bank's strategy is to participate in the sector using a sector-wide approach (SWAp), together with other donors, as recommended in the corresponding government policy. These efforts have recently materialized with the issue of a code of conduct for donors and a roadmap for carrying out sector operations under the SWAp. The basic SWAp mechanisms are expected to be completed during the second half of 2006 and presented to the new administration in 2007.

#### **H. Coordination with other donors**

- 1.19 The Bank's activity in the sector is continuously coordinated with the other sector donors in Nicaragua. The Bank is part of the water and sanitation group, and has coordinated financing for various projects in the sector. In the urban water and sanitation sector, the German Development Bank (KfW), the Luxembourg Agency for Cooperation and Development (Lux-Development), and the European Union are participating in the rehabilitation and expansion of services in intermediate cities. The Swiss Agency for Cooperation and Development (SCD) is also helping to increase the coverage of water and sanitation services in rural areas, and supports the sector's institutional model (lead agency, regulator, and operator).
- 1.20 Cooperation with the KfW and the Nordic Development Fund (NDF) has been particularly active in recent years. The Environmental Sanitation Program for Lake Managua and the City of Managua (PO-978 and 1060/SF-NI) was the fruit of that cooperation. The cofinancing from KfW and NDF, together with the contributions from loans 978/SF-NI and 1060/SF-NI, are being used to finance the Lake Managua sanitation project, which recently got under way.
- 1.21 In this context of dialogue with other donors, in addition to promoting and approving the Water and Sanitation Sector Strategy for Nicaragua for the 2005-2015 period, the Bank has collaborated in laying the groundwork for a broad sector-wide approach, as discussed in paragraph 1.18.

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<sup>15</sup> Municipal Social Investment Program (loan 1679/SF-NI) for US\$45 million, of which US\$35 million is expected to be used for rural water and sanitation systems.

## **I. Complementarity with other operations in preparation or in execution**

- 1.22 The components and actions envisaged for this operation are mainly intended to complement the water and sewerage services modernization program that was approved in 1999 and is two years away from completion.<sup>16</sup> This new operation is financing the actions required to improve the company not envisaged in the services contract but consistent with the modernization program. It also complements and reinforces the Bank's actions in support of the regulator since it utilizes the main regulatory instrument, the 2004 *concession agreement* between ENACAL and INAA. The components of this program have been defined by the company and its service contractor, with monitoring by the Bank. ENACAL's performance will be monitored on the basis of regulatory management standards established by INAA in the current concession agreement, which will have an addendum to include the management ratios defined for this operation.
- 1.23 This new program also complements the Bank's strategy in the sector. With FISE's municipal social investment program (loan 1679/SF-NI), the Bank is financing activities and investments in rural water supply (see footnote 16). The present program is financing activities and investments in urban areas. Moreover, the rehabilitation and optimization of water and sanitation system operations in intermediate cities included in this operation are expected to have an impact on productive conglomerates that promote the national development plan support program (1702/SF-NI). Lastly, the impact and operating efficiency of the environmental sanitation program for Lake Managua and the City of Managua (978/SF-NI and 1060/SF-NI) will be enhanced with the contributions from this program.

## **J. Experiences and lessons learned**

- 1.24 The Bank's experience in this sector (see paragraphs 1.6 to 1.11) indicates that the government's efforts to explain the scope and motivations of private-sector participation in water and sanitation services in Nicaragua have been part of a complex process, influenced by decisions to involve the private sector in other sectors (energy). This made it necessary to fine-tune the initial strategy adopted by the government, and called for flexibility and the ongoing monitoring by the Bank, until completion of an initial phase of the process with the services contract signed late last year.
- 1.25 In an environment of limited private-sector participation, ENACAL's efficiency can be increased in a number of ways: (i) developing a program to improve the company's indicators, with monitoring by the regulator and independent auditors; or (ii) modifying its governance structure, seeking to decentralize the company or

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<sup>16</sup> ENACAL's services contract, which is being financed out of the modernization program, expires in 2008.

implement other alternatives. In conjunction with the Bank, the government has selected the first alternative, which has been tailored to the Nicaragua case and establishes links with the regulator. The regulator plays an important role in the program through the *concession agreement*, which defines the company's performance targets. The second alternative is open for a subsequent phase of changes in the company, based on analyses that are expected to be completed in October of this year. For each case, the strategy adopted in the present program is consistent with both options.

**K. Program strategy**

- 1.26 ENACAL's institutional improvement strategy has been determined on the basis of a modernization program whose main instrument is a *services contract* with a specialized private operator. The consortium hired under the services contract provides advisory assistance to ENACAL on systems (integrated accounting-financial and business management systems), investment planning, operation of water and sewerage systems, and implementation of a program to reduce unbilled water (reduction of physical and commercial losses), and also gives special support for the company's business activities (customer billing, collections, customer registry, etc.).
- 1.27 Given its nature, the services contract focuses on advising the company on investment priorities, process implementation, and procurement of certain types of equipment to enhance performance, particularly commercial operations. The contract does not include major investments, or investments to rehabilitate systems, which given the company's situation are ultimately those that will enable the modernization strategy to have the desired impact on improving the company's overall performance and restoring its investment capacity.
- 1.28 This operation is intended to finance those actions, recommendations, and investments, identified in the services contract, which is the value added by this financing arrangement. The present operation will also strengthen the sector's regulatory framework and, indirectly, the regulator, since it integrates ENACAL's performance indicators, a result of the Bank-financed program into the regulatory contract between ENACAL and INAA, and supports its work by financing an audit of the targets set out in the concession agreement.
- 1.29 The sustainability of the modernization strategy requires ongoing monitoring and tracking, which extends beyond the execution periods of the Bank's operations. Consequently, as an adjunct to this operation, it is proposed that compliance monitoring be based on the *concession agreement* between INAA and ENACAL (which by law must be renewed every five years), modifying it to include measurable and auditable management targets for this operation and any other operations for which ENACAL receives financial support.

- 1.30 In keeping with this strategy, the present water supply and sanitation investment program has three components: (i) emergency plan; (ii) business strengthening; and (iii) rehabilitation and optimization of systems (see paragraphs 2.2, 2.3, and 2.4). In light of the company's situation, components 1 and 2 will be disbursed shortly (2007) with a view to restoring service to basic operational levels. The funding for component 3 will not be disbursed until the company has shown improvement in several management indicators, through the activities now in progress under the services contract and the effects of components 1 and 2.
- 1.31 The services contractor made a detailed diagnostic of the company's different areas and systems. Based on that diagnostic, very short-term actions have been identified for institutional strengthening (components 1 and 2). Resources from two of the Bank's technical-cooperation projects will be used to prepare the final designs of the representative sample (Masaya) (ATN/SF-9447-NI) and to finance the selection and final designs for the remaining beneficiary municipios (NI-T1045) under component 3. Likewise, program resources from the Swiss Ministry of State for Economy (SECO) will finance the designs for this component.
- 1.32 **Public utility policy.** The proposed operation meets the objectives of the Bank's Residential Public Utility Policy (OP-708) and adheres to the *Operational Guidelines* developed to enforce the policy: i) the program seeks to improve the sustainability and efficiency of services in the medium term, balancing the urgency of bringing deteriorated systems back into service with the modernization strategy in an environment particularly hostile to private-sector participation; ii) the level of Bank participation is synchronized with, and conditional on, improvements in ENACAL's management indicators under the framework and regulatory instruments defined by INAA. As part of strengthening the regulatory framework, the program will update rate and subsidy studies, and support the regulator by financing a management audit (see paragraphs 3.17 and 4.2); iii) the institutional structure of the sector separates the functions of policy formulation, independent regulation, and service delivery; and iv) the legal framework and existing regulations contain sufficient stipulations to encourage financial sustainability, economic efficiency, and quality service. The operation has been conceived to create incentives for the company to achieve the sustainability objective.



## II. THE PROGRAM

### A. Objectives and description

2.1 The objective of this program is to improve the living conditions of the people of Nicaragua by improving ENACAL's management in terms of the efficiency, quality, and sustainability of the water and sanitation services it provides. To that end, the program seeks to improve the company's technical, operational, commercial, and financial management, under a results-based management approach, in the context of the company's services contract.

#### 1. Component 1: Emergency plan (US\$8.1 million)

2.2 This component will finance urgent, priority investments in the repair, replacement, and rehabilitation of facilities and equipment required to restore the minimum conditions of service in the country's various systems, including the city of Managua. Those actions are expected to eliminate or reduce water rationing currently affecting more than 300,000 people in the country's main urban centers. Specifically, this component will finance: (i) the repair or rehabilitation of wells and surface catchment areas; (ii) repair and procurement of pumping equipment; (iii) supply and installation of electrical surge protection devices; iv) replacement of pipes and valves to facilitate the sectorization of networks and repairs; (v) procurement of chlorination equipment and monitoring and worker safety devices; and (vi) procurement of specialized vehicles for hauling, digging, sewer network cleaning, and other maintenance activities.

#### 2. Component 2: Business strengthening (US\$3.5 million)

2.3 This component will support and complement the activities carried out under the Modernization Program financed with loan 1049/SF-NI. This component will finance: (i) the supply of communications equipment for commercial operations, equipment for operations and maintenance (communication systems, additional IT systems, tools, equipment, etc.); (ii) studies and actions to optimize energy use; (iii) rehabilitation of regional and branch offices nation-wide (minor repairs, paint, furniture, air conditioning, etc.); (iv) training for key company personnel at various levels (managerial, technical, and operational); (v) improvement of ENACAL's corporate image (publicity, communications, customer relations, public relations); (vi) comprehensive review of the concession agreement<sup>17</sup> based on the company's

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<sup>17</sup> It is estimated that in 2007, the company will be restructured, new financing will be obtained, and the five-year investment plan required by the regulator will be available. Accordingly, a comprehensive review of the concession agreement between INAA and ENACAL will likely be necessary.

organization and development plans; vii) updating of the rate and subsidy study; and viii) management of the company's human resources.

### **3. Component 3: Rehabilitation and optimization of water and sanitation systems (US\$25.3 million)**

- 2.4 This component, to be executed by the multiple works modality, will finance the rehabilitation and optimization of water and sewerage systems that form part of a comprehensive strategy to improve the quality and sustainability of services in selected cities. Works that will, in principle, be financed under this component include: (i) improvements to existing facilities, mainly aimed at reducing physical and commercial losses and ensuring safe water; (ii) rehabilitation of equipment, storage tanks, wells, and other facilities necessary for proper operation of the utility; (iii) network sectorization plans for pressure control; (iv) minor expansions of water distribution networks to low-income areas, mainly using water recovered through the loss control system; (v) expansions of sanitary sewer networks in urban areas that have no alternative wastewater disposal system (e.g. septic tanks) and have poor sanitation because of the lack of this service; and (vi) improvements or expansions of treatment plants that discharge into bodies of water with limited absorption capacity, or where conflicts exist with other users of the resource. The program will also introduce financing for household connections to ensure that dwellings in low-income neighborhoods are connected to the network. In all cases, the works will be justified by analysis of their financial, technical, legal, socioeconomic, and environmental feasibility.
- 2.5 This component will be open to all cities satisfying the selection criteria. Ten cities have tentatively been identified as eligible. There is guaranteed financing for those studies. The studies for each city will analyze the current status of the two services, the condition of facilities, coverage, sources of supply, the wastewater receiving body, and other relevant considerations. Ways of increasing operating efficiency, reducing delivery costs, reducing physical and commercial losses, and, with sufficient justification, increasing service coverage, will be considered and recommendations made. Proposals to increase the water supply for a given city must not worsen its sanitation conditions. Accordingly, a comprehensive analysis of actions is needed to prevent adverse impacts to households or communities. The situation of people not connected to the system will also be analyzed, identifying independent suppliers, sources of supply, prices, product quality, etc., in order to promote, to the extent possible, more equitable and low-cost frameworks. This component includes the costs of design studies that will be conducted with SECO resources (see paragraph 2.7) and technical oversight activities during construction of the works.

**B. Costs and financing**

- 2.6 The estimated cost of the program is US\$30.6 million, broken down by investment category and source of financing, as shown in Table II-1. The Bank will provide financing of US\$30 million from the FSO and ENACAL US\$600,000.
- 2.7 SECO has informed the Bank of its intention to join the financing for the program with a nonreimbursable contribution equivalent to US\$8.7 million, to be allocated primarily to component 3, including the costs of studies and designs of the water supply and sanitation systems for the municipios and supervision of the funds disbursement process. The Swiss government's final decision on a contribution is expected in December 2006.<sup>18</sup> This decision would indicate the type of contribution envisaged (i.e. parallel financing or cofinancing). Once a decision is taken, the Swiss government and the Bank would enter into an agreement formalizing the decision and if necessary would sign a loan contract.

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<sup>18</sup> If the funding from the Swiss government is not forthcoming, the integrity of the program would not be affected since this is a modular program.

<b>Table II-1. Costs and Financing (US\$000s)</b>					
<b>Investment</b>	<b>IDB (FSO)</b>	<b>Local</b>	<b>Total</b>	<b>Financing (SECO)</b>	<b>Total with SECO financing</b>
<b>I. Program management</b>	<b>600</b>		<b>600</b>	<b>200</b>	<b>800</b>
1.1 Coordination	300		300		300
1.2 Evaluation, technical audit, and management audit	200		200		200
1.3 Financial audit	100		100	200	300
<b>II. Components</b>	<b>28,400</b>		<b>28,400</b>	<b>8,500</b>	<b>36,900</b>
2.1 Emergency plan	<b>8,100</b>		<b>8,100</b>		<b>8,100</b>
2.2 Business strengthening	<b>2,500</b>		<b>2,500</b>	<b>1,000</b>	<b>3,500</b>
2.3 Rehabilitation and optimization in intermediate cities	<b>17,800</b>		<b>17,800</b>	<b>7,500</b>	<b>25,300</b>
a. Project designs and supervision	1,200		1,200	500	1,700
b. Rehabilitation and optimization works and actions	16,600		16,600	7,000	23,600
<b>III. Unallocated costs</b>	<b>300</b>		<b>300</b>		<b>300</b>
3.1 Contingencies	300		300		300
<b>IV. Financial costs</b>	<b>700</b>	<b>600</b>	<b>1,300</b>		<b>1,300</b>
4.1 Interest	700		700		700
4.2 Credit fee		600	600		600
<b>V. Totals</b>	<b>30,000</b>	<b>600</b>	<b>30,600</b>	<b>8,700</b>	<b>39,300</b>

### III. PROGRAM EXECUTION

#### A. Borrower and executing agency

- 3.1 The borrower will be the Republic of Nicaragua and the executing agency will be ENACAL. The borrower will transfer the proceeds of the reimbursable financing to ENACAL on the same terms as the loan contract with the Bank. **The signing of a funds transfer and program execution agreement between the borrower and ENACAL will be a condition precedent to the first disbursement.**

#### B. Program execution and management

- 3.2 **Program executing unit (PEU).** ENACAL's Investment Project Management office will execute the program with the complementary support of a PEU attached to that office. Management is in charge of executing projects financed from external sources, such as the Bank, and has demonstrated adequate administrative and technical capacity for effective execution. Accordingly, the program will finance the incremental cost of the PEU, paying for a program coordinator and two specialists supporting the technical and accounting-financial areas. Investment Project Management will be responsible for the administrative and accounting-financial management of the operation, as well as procurement. The PEU's main functions are: (i) planning, monitoring, and supervising program activities; (ii) commissioning all studies and designs, works, goods, and required services, with the support of ENACAL's Assistant Management of Procurement; (iii) preparing IDB disbursement requests; and iv) preparing reports and other information required by the Bank. The PEU will work closely with the executing unit of the water and sanitation modernization program (loan 1049/SF-NI) **Establishment of the PEU with the necessary staff and responsibilities for the program will be a condition precedent to the first disbursement.**
- 3.3 **Operating manual.** The Program Operating Manual will include: (i) the operation's general and specific objectives; (ii) list of activities to be financed under the program and how they will be executed; (iii) proposed organizational framework for program execution; (iv) roles, functions, and responsibilities of each stakeholder participating in the program; (v) ENACAL's internal and external coordination and monitoring authorities; (vi) technical, environmental, financial, and bidding procedures that are to be followed; (vii) procedures for the financial audit of the program and ENACAL; (viii) procedures for the company's technical and management audits; and (ix) conditions and eligibility criteria for investments in component 3. **Approval and entry into force of the Operating Manual will be a condition precedent to the first disbursement.**

### C. Eligibility criteria

- 3.4 The systems of intermediate cities (other than Managua) will be eligible for financing for component 3 provided the investments meet the following criteria: (i) they must be viable from an economic standpoint, that is they must have an economic rate of return of more than 12% (cost-efficiency criteria or cost-benefit evaluation); (ii) they must be financially sustainable, that is the proposed investments cannot entail negative cash flow for ENACAL; (iii) they must be accessible to the low-income population, that is the investments must be made to benefit mainly low income groups; (iv) they must strike a balance between investments in water and sanitation, that is the improvements in water supply systems must not produce unfavorable sanitation conditions; and (v) insofar as is possible the investments must be made in municipios that are part of the conglomerates identified in the country's development plan.

### D. Performance indicators

- 3.5 The disbursement of funds for component 3 will be subject to fulfillment by ENACAL of the performance indicators and targets agreed on between the company and the regulator (INAA), and between the company and the Bank. The performance indicators and corresponding annual targets are to be included in the concession agreement entered into between ENACAL and INAA in 2004, under an addendum. **The entry into force of the addendum to the concession agreement between ENACAL and INAA will be a condition precedent to the first disbursement.**
- 3.6 The indicators are presented in Table III-1. The baseline has been established using the results of an independent audit. The indicators that will be used to monitor and rate ENACAL's performance are cost coverage and own investments, verifying in particular investments targeting low-income groups (indicators 8 and 9). The indicators that have a direct impact on the company's revenues (indicators 1 to 4), and the cost structure (indicators 5 to 7), affect cost coverage (indicator 8), which will measure the basic objective of the company's sustainability, and indicator 9, which shows the extent to which efficiencies gained by the company are going to investments that target mainly the poorest segments of the population.

Table III-1 - ENACAL Performance Indicators and Targets						
Indicators and Targets	Baseline	Milestone 1	Milestone 2	2009	2010	2011
	2006	2007	2008			
1. ICD rates applied	approx. 80% ICD	same as 2006	10% increase	same as 2008	ICD value	same as 2010
2. Revenue collection efficiency: Revenue collected / Operating income	88%	90%	91%	92%	93%	95%
3. Micro metering rate (%) (read)	49.3%	52.8%	56.4%	60.0%	63.3%	63.3%
4. Percentage of Unmetered Water UMW (%)	55.5%	53.5%	43.3%	42.4%	42.4%	42.4%
5. Labor cost / 1,000 m <sup>3</sup> billed (C\$)	2,276	1,989	1,479	1,397	1,348	1,301
	US\$130	US\$108	US\$77	US\$71	US\$66	US\$63
6. Employees per 1,000 water customers	6.5	6.3	6.1	5.8	5.5	5.3
7. Energy consumed per unit of production (kWh/m <sup>3</sup> )	0.689	0.678	0.677	0.677	0.677	0.677
8. Cost coverage (revenue collected / cost administration plus operations plus maintenance)	0.86	0.93	1.06	1.09	1.13	1.15
9. ENACAL's own investments in expansions into poor areas (C\$/year) <sup>a/</sup>	0	0	40,000,000	50,000,000	75,000,000	100,000,000
			US\$2.6 mill	US\$3.8 mill	US\$4.9 mill	US\$7.2 mill
10. Maintenance as a % of cost of assets	1.2%	1.4%	1.9%	2.0%	2.0%	2.0%

a/ IMF projected exchange rate in cordobas per dollar: **2006:** 17.6, **2007:** 18.5; **2008:** 19.2; **2009:** 19.8; **2010:** 20.4; and **2011:** 20.8.

- 3.7 ENACAL will have access to the resources of component 3 on two occasions. Once the first milestone for indicator 8 is reached, ENACAL may begin arranging for commitment of up to 50% of the financing for component 3 for eligible investment projects. ENACAL is expected to need between 12 and 18 months to meet the first set of targets. Once ENACAL meets the second set of targets for the same performance indicators (8 and 9), it may begin arranging for commitment of the remaining 50%. The company is expected to need a similar period to reach those targets. At the same time, in order to guarantee the objective of the company's sustainability, for the systems to be financed in component 3, ENACAL will prepare a system tariff action plan. If the company fulfills the targets earlier than planned, it may begin arranging for commitment of the resources immediately. **Attainment of the indicators and the drafting of the tariff action plan will be a**

**contractual condition precedent to disbursement of the financing for component 3.**

- 3.8 Accordingly, reviews have been planned to verify compliance with the performance indicators and progress in overall program execution. The first review will be performed no later than 20 months after the date of entry into force of the contract, or when the company has demonstrated compliance with the target indicators for the first milestone. The second review will be performed 24 months after the effective date of the contract. Successive reviews will be performed to verify that the company has attained and maintained the indicators. **Fulfillment of these indicators will be verified by external audit (see paragraph 3.17). Performance of at least two compliance verification reviews is a condition precedent to execution of the program.**
- 3.9 **Logical framework.** The operation's logical framework presents indicators associated with the program's purpose and components (see Annex I).

**E. Accounting-financial management and audit of the program**

- 3.10 ENACAL will be responsible for the accounting-financial management of the program, including: (i) to maintain specific accounting and budget accounts for administration of the financing and the local counterpart funding; (ii) to establish effective internal control structures; (iii) to implement a detailed accounting and fund accounting statement system for administration, registration, and payment of works contracts and procurement of goods and consulting services; (iv) to present the program's consolidated financial statements in a timely manner, and to make available to the Bank and external auditors such accounting information and other documentation as may be required; (v) to keep proper records of disbursement requests; and (vi) maintain an effective filing system of documentation in support of eligible expenses for verification by the Bank and external auditors.
- 3.11 During program execution, ENACAL will present each year the financial statements of the program and the entity. The external audit will be performed by a firm of independent auditors acceptable to the Bank, in accordance with the Bank's policies and requirements (AF-100 and AF-300). The audit firm will be engaged in accordance with the procedures set out in the External Audit Bidding document (AF-200) and the terms of reference previously approved by the Bank (AF-400 and AF-500). The audit program will be financed out of the Bank financing. The independent auditors will be engaged for a minimum of five years. The external audit will be a financial and operational audit, requiring the presentation of a semiannual "interim" report within 60 days of the end of the program's first six-month period. The annual audited financial statements of the program and the company must be presented within 120 days after each fiscal year-end, beginning with year one of the program and continuing for the duration of the loan contract.



The program's closing financial statements will be presented within 120 days after the last disbursement.

**F. Revolving fund**

3.12 The Bank will establish a revolving fund of up to 5% of the total loan amount, once the conditions precedent to the first disbursement have been met. These resources are to be managed through a special bank account in the name of the program. Within 60 days after the end of each six-month period, ENACAL must present to the IDB consolidated reports on the status of the fund.

**G. Procurement of goods and services**

3.13 Works and goods will be procured in accordance with Bank policies set out in document GN-2349-7 of August 2006, and consultants will be selected and contracted in accordance with Bank policies set out in document GN-2350-7 of August 2006. As stipulated in the consultant policies, the shortlist of consultants for studies with an estimated cost of less than the equivalent of US\$200,000 per contract may consist entirely of national consultants. Table III-2 summarizes the procurement methods that will be used in the program.

<b>Table III-2. Thresholds for Program Procurements (US\$)</b>			
	<b>ICB</b>	<b>NCB</b>	<b>Shopping</b>
Works and related services	>1,500,000	≤1,500,000 and >150,000	≤150,000
Goods	>150,000	≤150,000 and >25,000	<25,000
Consulting assignment	≥200,000		
*Selection methods: i) Competitive selection process with national advertising (firms) >30,000 and ≤200,000; ii) Single-source selection (firms) >30,000; and iii) Single-source selection of individual consultants ≤30,000.			

3.14 **Procurement review method.** Program procurements of goods, works, and consulting services will be evaluated *ex ante*.

3.15 **Procurement plan.** In accordance with procurement policies, prior to negotiating the loan, the borrower will agree with the Bank on a procurement plan (see Annex II) detailing procurements for the first 18 months of program execution. **Components 1 and 2.** Component 1 (emergency plan) and component 2 (business strengthening) have been defined in detail. It is anticipated that funds will be disbursed during the 18 months of program execution. **Component 3.** Component 3

(rehabilitation and optimization of water and sanitation systems in intermediate cities) will be carried out through the *multiple works* modality.

## H. Execution period and disbursement calendar

- 3.16 The program execution period has been estimated at five years. The tentative timetable for disbursements is presented in Table III-3. The timetable was prepared considering the expected execution period for each of the three components and the conditions for access to the resources of component 3.

Table III-3 Tentative Disbursement Schedule (US\$000s)						
Source	Year 1	Year 2	Year 3	Year 4	Year 5	Total
IDB	4,650	10,650	4,800	4,850	5,050	30,000
SECO	790	790	2,040	3,040	2,040	8,700
Counterpart	250	150	100	60	40	600
Total	5,690	11,590	6,940	7,950	7,130	39,300
Percentage	15%	29%	18%	20%	18%	100%

## I. Monitoring and evaluation

- 3.17 Two verification reviews or technical and management audits have been planned to verify compliance with the performance indicators and permit disbursement of resources for component 3. The first review will be performed when the company indicates that it has met the target indicators for the first milestone. The second review will be performed when the company indicates that it has met the target indicators for the second milestone. Compliance with those indicators will be verified through technical and management audits performed by an independent consulting firm, in accordance with the terms of reference agreed with the Bank.
- 3.18 A final evaluation of the program will be conducted when 90% of the financing has been disbursed. The purpose of this evaluation will be to analyze such aspects of the program as: (i) compliance with the indicators established in the program logical framework (see Annex I); (ii) application of the eligibility criteria of investments in component 3; (iii) implementation of the company's organization and development plans; and (iv) compliance with the Program Operating Manual.

## J. Operation and maintenance

- 3.19 ENACAL will operate and maintain the constructed works. To this end, the company agrees to hire the required technical personnel and to obtain the necessary resources to effectively operate and maintain the works resulting from support provided under the services contract. The concession agreement includes a financial

target to enable the company to allocate resources for maintenance of its assets (see Table III-1, indicator 11). In order to effectively monitor the condition of the works, each year ENACAL will need to present to the Bank an annual operation and maintenance plan for systems financed with program resources, for a five-year period reckoned from completion of the first program works and within the first three months of the calendar year. The plan must include a report on activities during the prior year and on the condition of systems.

**K. Compilation of data**

- 3.20 The borrower agrees to compile the necessary data to evaluate compliance with program targets in order to permit a future assessment of the efficiency and effectiveness of the program in terms of achieving the proposed objectives and applying lessons learned. The executing agency will present two summary reports to the Bank: 1) before the works are built and 2) one year after the new systems come on-line. These summaries must furnish the following information: (i) total number of families; (ii) number of water and sewer connections; (iii) average water consumption per connection; and (iv) statistics on the incidence of water-borne diseases and infant mortality. The baseline for measuring the program's effectiveness was obtained during preparation of the operation.

## IV. FEASIBILITY AND RISKS

### A. Institutional feasibility

- 4.1 **ENACAL:** In order to evaluate institutional feasibility, a simplified Institutional Capacity Assessment System (ICAS) was applied to ENACAL, which evaluated the company's procurement, financial management, and internal control capabilities. ENACAL is one of the public institutions that participated in the Bank-financed program to promote efficiency and transparency in government procurement. As a result of that program, ENACAL has clearly defined responsibilities and procedures, trained staff, and modern equipment, which enables it to execute its functions under the program. In the area of financial management, weaknesses were observed related to the lack of a system to integrate information from different areas of the company, which causes financial information to be delayed and unreliable. However, the consortium that advises the company under the services contract is to introduce an integrated IT system that will eliminate these types of problems. In the internal audit area, general procedures and responsibilities are clear. However, risk assessment analyses are not performed, largely due to the lack of physical resources and equipment, and a control environment that in the past has been an obstacle to implementation of recommendations issued by the internal auditors. These weaknesses will be largely resolved with the new integrated information system to be implemented by the company, which will include an internal audit module.
- 4.2 **INAA.** INAA is an autonomous State-run agency that reports hierarchically to the Office of the President of the Republic (Law 275, "INAA Reform Act"). MIF resources (ATN/MT-7187-NI) (see paragraph. 1.6) were used to develop the sector's regulatory framework and a training program for the agency's staff. Accordingly, INAA has a simple administrative structure suited to the sector's regulatory needs. It has a chief executive officer, a research department, and a customer service department, complemented by support, administrative, and finance departments. INAA has the technical capacity to fulfill its responsibilities under this operation as an agent, although it requires support to obtain data. This operation will enable INAA to better exercise its regulatory functions, based on the results of the operational and management audits.

### B. Socioeconomic feasibility

- 4.3 For components 1 and 2 of the program, a cost-benefit analysis was performed, recording as benefits the cost savings and effective increases in consumption resulting from better access to safe water for people with service connections, but without adequate service. The rate of return is 28.8% for the conservative scenario. For component 3, an evaluation was made of the representative sample of projects in the case of Masaya. The alternative selected has a rate of return similar to

components 1 and 2 (28%) since it consists of investments in rehabilitation and optimization of components having a high impact on water use as well as being the expansion alternative with the least economic cost. The information used as the basis for the analysis, econometric models of estimated demand, demand and population projections, and outcomes of the model scenarios will be available in the program files. Given that the program evaluated for component 3 the representative sample from the city of Masaya, the operating regulations include an annex of economic evaluation criteria that should be followed for subprojects to be financed under this subcomponent in order to be eligible for program financing.

### **C. Financial and rate feasibility**

- 4.4 **ENACAL.** The analysis of financial viability examined the company's historical data (three-year period) and cash flow projections based on a model in different scenarios simulating the financial impact of the present activities to improve its situation, including the actions proposed in components 1 and 2. Only by embracing measures to raise revenue<sup>19</sup> and exercising strict control of expenses will ENACAL become financially viable. The financial simulation shows that adopting the Bank-financed actions recommended in the services contract will not only restore ENACAL to financial viability but will also enable the company to generate sufficient revenue to service the loan.
- 4.5 **Historical analysis:** Net cash flows generated by ENACAL's operations in the last three years have been insufficient to cover operating, maintenance, and administrative expenses. The efficiency of collections declined with respect to 2002, and revenue collected is not enough to finance the company's operating, maintenance, and administrative expenses. Earnings were negative in the three years reviewed, trending downward, with losses of US\$12 million in 2003, US\$36 million in 2004, and US\$13.7 million in 2005. The latter figure represents a 14% increase from 2003. While positive in 2004 and 2005, internally generated resources were US\$800,000 in 2006 down from US\$5 million the year before. Operating margin also fell in 2005, to -9.7%.
- 4.6 As of 31 December 2005, ENACAL reported current liabilities of US\$36.7 million, long-term liabilities of US\$86.3 million, and total liabilities of US\$123 million, an increase of US\$15 million over 2003 (14%). Total liabilities are equivalent to 1.8 times company equity, which is unusual in the State-owned sanitation sector, where the ratio typically does not exceed 50%. This situation is related to the fact that the government is responsible for amortization payments and some loans are forgiven by creditors.

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<sup>19</sup> These activities include better billing and collection, reductions in unbilled water and illegal connections.

- 4.7 The collections to billings ratio declined from 90.2% in 2002 to 85.4% in 2003. In subsequent years, there has been a gradual improvement, reaching 88% in 2005. Billings, expressed in currency equivalent, have decreased in recent years from US\$46.2 million in 2002 to US\$43.8 million in 2005. Collections decreased from US\$41.7 million in 2002 to US\$38.8 million in 2003, stabilizing at that level in subsequent years. Accordingly, the improvements in the last two years in the collections efficiency indicator are due to a decline in billings. The expense coverage ratio ranged between 0.69 in 2003 and 0.86 in 2005. The improvement in that ratio is due to a reduction in expenses in real terms.
- 4.8 The main component of current assets is accounts receivable, which in net terms amounted to US\$19.6 million in 2005. This amount breaks down as follows: US\$25.9 million in customer accounts receivable; US\$6.7 million in sundry accounts receivable, of which US\$5.7 million corresponds to advances on investments; and –US\$13 million to allowances for doubtful accounts. Temporary investments, which amounted to US\$6.3 million in 2005, correspond to term savings deposits from funds either financed or donated by international organizations for use in infrastructure projects. The gross amount of customer accounts receivable is equivalent to seven months' sales, a decrease from prior years. This figure is high compared to more efficient sanitation companies.
- 4.9 Two components together account for more than 85% of operating costs (excluding depreciation). Those components are payroll (40%) and electric power (45%). A reduction in labor costs is considered feasible, as the ratio of personnel to customers is quite high (6.5 employees/1,000 customers as of 31 December 2005) compared to other similar companies. In the case of electric power, the company plans to gradually transition to one supplier in order to be eligible for the large consumer rate, resulting in a cost reduction of approximately 50% per MWh. This would begin to materialize starting in October 2006, after acquiring and installing large meters in the wells.
- 4.10 **Projections.** Given the above situation and as part of the loan conditions, annual performance targets and indicators were established with ENACAL authorities and INAA calculated to achieve financial self-sufficiency. These targets are based on actions that are now being carried out (services contract) or are expected to be carried out (with components 1 and 2). The company agreed to a series of steps to improve collection efficiency, cost coverage, and employee productivity and to reduce unbilled water. These steps are set out in the concession agreement, and the targets and indicators are listed in Table III-1. These targets were devised on the basis of the results of the company's simulated cash flow model presented in Table IV-1 (the full model is available in the program files). The projections show that cost cutting actions are feasible although the impact would be less than the impact of revenue increasing measures (without raising rates).

<b>Table IV-1 ENACAL Projected Cash Flow (US\$000s)</b>					
<b>Item</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Operative revenue</b>	<b>44,939</b>	<b>46,350</b>	<b>53,498</b>	<b>55,164</b>	<b>56,876</b>
<b>Operating expenses</b>	<b>39,817</b>	<b>39,228</b>	<b>38,817</b>	<b>38,720</b>	<b>38,634</b>
Payroll	16,053	15,803	15,552	15,301	15,050
Electricity – water	15,586	15,086	14,759	14,741	14,729
Electricity – other uses	293	299	305	311	317
Supplies, fuel, and replacement parts	2,575	2,678	2,785	2,897	3,013
Security and protection	759	766	774	782	789
Others	4,551	4,596	4,642	4,689	4,736
<b>Operating cash flow</b>	<b>5,122</b>	<b>7,122</b>	<b>14,680</b>	<b>16,444</b>	<b>18,242</b>
Plus: Other revenue/outlays	2,695	2,695	2,695	2,695	2,695
Financial income	916	916	916	916	916
Less: Compensation for years of service	-211	-251	-251	-251	-251
Financial expenses	-4,730	-4,824	-4,921	-5,019	-5,119
<b>Projected cash flow before investment and financing</b>	<b>3,793</b>	<b>5,659</b>	<b>13,120</b>	<b>14,786</b>	<b>16,483</b>

- 4.11 **Rates:** In accordance with regulations in effect in Nicaragua, ENACAL's rates<sup>20</sup> are calculated on the basis of long-term marginal costs<sup>21</sup>, considering economic efficiency, operating efficiency, equity, and self-financing criteria. Pursuant to those regulations, authorized rates are effective for a period of five years, during which time they will be readjusted whenever there is a cumulative variation greater than or equal to 10% in any of the indexation polynomial components. The current rate structure was established in rate agreement 9 (April 2001), with December 2000 baseline values. That structure includes a monthly flat rate per customer and a variable charge per m<sup>3</sup> of water and per m<sup>3</sup> of sewerage. Rates are differentiated by type of customer and level of consumption, with one rate for Managua and another for the rest of the country.
- 4.12 The variable charge for water per m<sup>3</sup> for residential customers in Managua in US\$ equivalents for December 2005 ranges between US\$0.116 for subsidized groups that consume up to 20 m<sup>3</sup> per month and US\$0.770 for higher-income customers that consume more than 50 m<sup>3</sup> per month. In the rest of the country, the rate ranges between US\$0.124 for subsidized groups that consume up to 20 m<sup>3</sup> per month and US\$0.761 for those that consume more than 50 m<sup>3</sup> per month (see Table IV-2).

<sup>20</sup> Executive Order 45-98, amended by Executive Order 42 of 2003, and Law 297 of 1998 and the Regulations thereunder.

<sup>21</sup> Incremental development cost (IDC)

- 4.13 The water and sewer rates in effect are below breakeven in every category identified except customers who consume more than 50 m<sup>3</sup> per month, where the water rate is above breakeven. Also, the water rate for the subsidized group that consumes up to 20 m<sup>3</sup> per month is 75% below break even in Managua and 80% below in the rest of the country. In the case of institutional customers that consume up to 50 m<sup>3</sup> per month, the water rate is 14% below break even in Managua and 27% below in the rest of the country.
- 4.14 ICD rates are used as a benchmark to establish a rate schedule, which includes cross-subsidies. Both rates (i.e. self-financing and the subsidized schedule) have been systematically adjusted since 2000 whenever the variation in indicator prices in the INAA indexation polynomial reached 10%. ENACAL rates have been adjusted to economic prices corresponding to February 2002. In December 2005, INAA approved another adjustment to economic prices corresponding to December 2003, but ENACAL did not apply that rate. As of July 2006, rates indexed to economic prices corresponding to February 2002 are being applied. As a result, average rates for water and sewerage services in Managua and the rest of the country are lower than self-financing rates and less than the average cost (see Tables IV-2 and IV-3).

Table IV-2. Rates in effect in August 2006

	Consumption (m3)	C\$ in February 2002			US\$		
		Fixed rate per customer	Variable rate per m3		Fixed rate per customer	Variable rate per m3	
			Water	Sewer		Water	Sewer
<b>Managua</b>							
Subsidized groups	0 to 20	1.06	1.99	0.77	0.062	0.116	0.045
	+	1.06	2.5	0.99	0.062	0.146	0.058
Household	0 to 20	4.24	3.54	1.06	0.247	0.206	0.062
	21 to 50	4.24	5.88	1.46	0.247	0.343	0.085
	+	4.24	10.48	3.45	0.247	0.611	0.201
Household/highways	0 to 50	8.56	5.88	1.69	0.499	0.343	0.099
	+	8.56	13.20	4.27	0.499	0.770	0.249
Institutions	0 to 50	8.56	6.76	1.69	0.499	0.394	0.099
	+	8.56	14.49	4.27	0.499	0.845	0.249
<b>Rest of the country</b>							
			Variable rate per m3			Variable rate per m3	
			Water	Sewer		Water	Sewer
Subsidized groups	0 to 20	1.06	2.13	0.64	0.062	0.124	0.037
	+	1.06	2.83	0.86	0.062	0.165	0.050
Household	0 to 20	4.24	4.85	1.45	0.247	0.283	0.085
	21 to 50	4.24	6.20	1.78	0.247	0.362	0.104
	+	4.24	13.04	3.57	0.247	0.761	0.208
Institutions	0 to 50	9.46	7.72	2.38	0.552	0.450	0.139
	+	9.46	14.68	4.00	0.552	0.856	0.233

Exchange rate C\$ per US\$ at 31/12/05 17,1455

- 4.15 Given this significant difference, INAA and ENACAL agreed in the concession agreement to adjust the rates after the disbursement of the financing for components 1 and 2. Accordingly, program resources are being used to finance an update of rate and subsidy studies for the country. **Implementation of ENACAL's rate adjustment action plan in accordance with the recommendations of the program-financed study will be a condition precedent to commitment of resources for component 3.**



Table IV-3 . Rates in effect to self financing ratio					
		MANAGUA		REST OF THE COUNTRY	
Customers	Consumption (m3)	Variable rate per m3		Variable rate per m3	
		Water	Sewer	Water	Sewer
Subsidized groups	0 to 20	25.3%	14.1%	20.2%	10.0%
	+	31.8%	18.2%	26.8%	13.5%
Household	0 to 20	45.0%	19.4%	46.0%	22.7%
	21 a 50	74.7%	26.8%	58.8%	27.9%
	+	133.2%	63.3%	123.6%	56.0%
Household/highways	0 to 50	74.7%	31.0%		
(Producers of subsidies)	+	167.7%	78.3%		
Institutions	0 to 50	85.9%	31.0%	73.2%	37.3%
(Producers of subsidies)	+	184.1%	78.3%	139.2%	62.7%

#### D. Technical feasibility

- 4.16 Component 1 (Emergency Plan) is fully justified and identified, and can immediately begin the procurement process. The objectives of the selected investments are as follows: i) increase the reliability of ENACAL-operated facilities, reducing unscheduled outages of key facilities for service delivery, and extended outages for repairs; ii) reduce the supply deficit that affects services; iii) increase the water supply by rehabilitating facilities that have been down recently due to the lack of spare parts; iv) reduce physical losses by reducing the wait times for repairs; and v) improve the quality of water produced and distributed. A secondary objective is to reduce the cost of energy for services.
- 4.17 The physical water and sewerage works of component 3 have been designed solely for the case of the representative sample of Masaya. The designs for the rest of the component will be completed in year one. Works have been scheduled based on the needs of each system and each service, giving priority in the initial years to works that optimize and have an impact on infrastructure, including the unbilled water reduction program. Works to expand coverage will be built exclusively in poor areas of the beneficiary cities or towns. The works schedule presents the required timeframes to carry out the planned activities and works, in order to minimize any adverse socioenvironmental impacts. The proposed five-year disbursement period is realistic and feasible, considering the executing unit's prior experience with Bank projects.
- 4.18 The technical evaluation included an analysis of the balance between supply and demand over a 30-year planning horizon for the main components of the water supply and sewer systems, including wastewater treatment. An analysis was also made of alternatives for addressing coverage and quality issues, and of the technical parameters used in the final program engineering designs. The results of this analysis show that for the sample case (Masaya), supporting studies are consistent

with the recommended parameters for guaranteeing the safe delivery of water and sewer services. Cost calculations are based on actual unit costs in the foreign and domestic market, with reasonable allowances for contingencies. Moreover, the engineering works present no special complexities. Supervision of program-financed works is adequate and will be commissioned with program resources.

- 4.19 Execution of the program works and their subsequent operation and maintenance will be the responsibility of ENACAL, which after completion of the emergency component will have enough qualified staff to mitigate the operating risks.

**E. Environmental and social feasibility**

- 4.20 The program seeks to correct undesirable sanitation conditions resulting from the lack of adequate water supply and wastewater collection services in the country's urban areas. The proposed operation will offer important environmental and social benefits and, in general, the program's three components will produce no significant adverse effects.

- 4.21 The works corresponding to component 1 (emergency plan) are mainly oriented toward rehabilitating existing facilities that are unable to provide a continuous supply of water because they are obsolete, in poor condition, or not operational. The actions of component 2 (business strengthening) are mainly administrative, operational, commercial, and financial in nature. Component 3 (rehabilitation and optimization of water and sanitation systems in intermediate cities) seeks to improve the quality and sustainability of services in selected cities, reduce losses, and, where justified, expand water and sewer networks to low-income sectors. Hence, the program would not be financing a major expansion of water supply systems. However, the infrastructure works to be built may have temporary adverse environmental impacts, such as interference with traffic flow due to public road closures, noise, truck traffic, and other inconveniences commonly associated with the construction of small-scale civil works. No population resettlements are expected to be necessary as a result of the works. The diagnostic and design studies conducted in each participating city will produce a comprehensive evaluation of social and environmental considerations related to the existing facilities and the proposed works, and will propose such preventive, corrective, or mitigating measures as may be necessary. Specifically, the appropriate measures will be taken to ensure proper wastewater disposal.

- 4.22 The program will include the mechanisms for effective review of environmental impact studies on the works, and the incorporation of the recommended mitigation measures in accordance with Bank policies, the Environment and Natural Resources Act (Law 217 of 1966), and the regulations that govern environmental impact assessments in Nicaragua. The Operating Manual will include the procedures for review and approval of the environmental and social studies.

**F. Risks**

- 4.23 The main risk associated with the operation is political. Because this is an election year, there is a risk that the new administration might not support the proposed modernization strategy. Given the deteriorating conditions in ENACAL, the project team believes there are few options to improve the company other than those proposed in the modernization strategy and this operation. This program is focused more on improving the company's service delivery than on rate increases. Additionally, the services contract is in effect until the end of 2008, which provides some guaranty of continuity for the strategy. The strategy is also formally backed by INAA (the regulator) through the concession agreement. The Bank will maintain close dialogue with the new administration, with a view to explaining the nature and objectives of the operation and minimizing this risk.
- 4.24 Another risk identified is the potential failure of the main regulatory instrument (i.e. the concession agreement) due to a weak regulator. This risk can be mitigated through the loan contract with the Bank, which reinforces the concession agreement since it includes the same indicators agreed between INAA and ENACAL, thereby indirectly strengthening the regulator and the regulatory instrument.

**LOGICAL FRAMEWORK**

**WATER SUPPLY AND SANITATION INVESTMENT PROGRAM  
(NI-L1017)**

NARRATIVE SUMMARY	PERFORMANCE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p><b>GOAL:</b></p> <ul style="list-style-type: none"> <li>• Improve the living conditions of the people of Nicaragua by improving water, sewer, and sanitation services provided by ENACAL.</li> </ul>	<ul style="list-style-type: none"> <li>• ENACAL is financially sustainable, provides adequate service to customers, and fulfills commitments agreed with the utility regulator.</li> <li>• Contribution to attainment of the Millennium Development Goals in water, sewerage, and sanitation.</li> </ul>	<ul style="list-style-type: none"> <li>• Sector/country reports and statistics.</li> <li>• Official documents of CONAPAS, INAA, and ENACAL.</li> </ul>	<ul style="list-style-type: none"> <li>• Civil society and national and local authorities sponsor and participate in the sector's development.</li> </ul>
<p><b>PURPOSE</b></p> <ul style="list-style-type: none"> <li>• Improve ENACAL's performance in water and sanitation service delivery in terms of efficiency, service quality, and financial sustainability, by improving technical, operational, commercial, and financial management.</li> </ul>	<ul style="list-style-type: none"> <li>• Cost coverage increases from 0.86 to 0.93 (first milestone), to 1.06 (second milestone), and to 1.15 by the end of the program.</li> <li>• Increase in the low-income population with water (39,000 inhab.) and sewer (12,000 inhab.) service by the end of the program.</li> <li>• In order to improve service continuity, water supply increases by 11.1 Mm<sup>3</sup>/year by the end of year one, and by 27.0 Mm<sup>3</sup>/year by the end of year two.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular documentation of CONAPAS, INAA, and ENACAL.</li> <li>• Management audit reports.</li> <li>• External financial audit reports on the program.</li> <li>• Concession agreement and addendum thereto, including the annex of annual targets.</li> <li>• Supervision of the services contract.</li> </ul>	<ul style="list-style-type: none"> <li>• Commitment by the company and the regulator to achieve results-based objectives through the rehabilitation, expansion, and ongoing maintenance of water and sewerage systems.</li> <li>• Monitoring, supervision, and oversight of indicators by the regulator (INAA).</li> <li>• Satisfactory performance of the services contract.</li> <li>• Rates authorized by the regulator (INAA) permit system sustainability.</li> </ul>

NARRATIVE SUMMARY	PERFORMANCE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
	<ul style="list-style-type: none"> <li>• Improvement in the bacteriological quality of water produced (number of acceptable samples increases by 3.2% by the end of year one, and by 8% by the end of year two).</li> <li>• Rate levels meet annual targets set in the concession agreement.</li> <li>• Percentage of unbilled water declines from 55.5% (baseline) to 53.5% by the first milestone, to 43.3% by the second milestone, and to 42.4% by the end of the program.</li> </ul>		
<b>COMPONENTS:</b>			
<p><b>A. Emergency plan</b></p> <p>Carry out actions and urgent, priority interventions for the repair, replacement, and rehabilitation of facilities and equipment required to restore the minimum conditions of service in the country's different systems, including the city of Managua.</p>	<p>By the end of year three:</p> <ul style="list-style-type: none"> <li>• 27 existing wells are rehabilitated.</li> <li>• 67 pumps in existing wells are replaced.</li> <li>• 11 relay pumps are replaced.</li> <li>• 71 chlorination units are replaced.</li> <li>• Electronic surge protection units are installed.</li> <li>• 19 specialized vehicles are acquired for maintaining water and sanitation systems.</li> <li>• 2,600 km of water supply networks are rehabilitated.</li> </ul>	<ul style="list-style-type: none"> <li>• Project physical-financial progress reports.</li> <li>• Supervision visits. Management missions.</li> <li>• Project Monitoring and Assessment System reports.</li> <li>• Management audit reports on the company and the concession agreement.</li> </ul>	<ul style="list-style-type: none"> <li>• The relevant authorities support the process of replacing and rehabilitating existing infrastructure.</li> <li>• Full and satisfactory performance of the services contract.</li> </ul>

NARRATIVE SUMMARY	PERFORMANCE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
	<ul style="list-style-type: none"> <li>Electric power consumption is reduced by 1,600,000 kWh/year by the end of year one, and by 3,970,000 by the end of year two.</li> </ul>		
<p><b>B. Institutional strengthening</b></p> <ul style="list-style-type: none"> <li>Develop training and technical assistance programs for the regions and the company.</li> <li>Implement a results-based monitoring and evaluation system.</li> <li>Develop programs to facilitate communication between customers and the company.</li> <li>Adopt cost-cutting programs.</li> </ul>	<ul style="list-style-type: none"> <li>All ENACAL employees receive training; 30% receive at least two training courses; a total of 7,720 training hours is provided in the commercial area by the end of year two.</li> <li>The number of employees/1,000 connections declines from 6.5 (baseline) to 6.3 by the first milestone, to 6.1 by the second milestone, and to 5.3 by the end of the program.</li> <li>Collection efficiency rises from 88% to 90% (first milestone), to 91% (second milestone), and to 95% by the end of the program.</li> <li>More than 95% of incoming calls are answered by the end of year three.</li> <li>Communications program coverage nation-wide reaches 70% in geographical terms by the end of year three.</li> <li>14 major customer service offices and 18 smaller offices are improved nation-wide by the end of year three.</li> </ul>	<ul style="list-style-type: none"> <li>Project physical-financial progress reports.</li> <li>Supervision visits to customer service offices. Management missions.</li> <li>Project Monitoring and Assessment System reports.</li> <li>Feasibility and viability studies prepared as a result of technical assistance.</li> <li>Management audit reports on the company and the concession agreement.</li> <li>Training certificates issued.</li> <li>Customer satisfaction studies or surveys.</li> </ul>	<ul style="list-style-type: none"> <li>The relevant authorities support the process of replacing and rehabilitating existing infrastructure.</li> <li>Full and satisfactory performance of the services contract.</li> </ul>

NARRATIVE SUMMARY	PERFORMANCE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p><b>C. <i>Rehabilitation and optimization of water and sanitation systems</i></b></p> <ul style="list-style-type: none"> <li>• Carry out rehabilitation and expansion of water supply and sanitation services.</li> <li>• Optimize the operation of water supply and sewer systems.</li> <li>• Provide environmental remediation.</li> </ul>	<p>Between year two and year five:</p> <ul style="list-style-type: none"> <li>• 80 km of water networks are rehabilitated, replaced, or installed.</li> <li>• 16 km of sewer networks are repaired, replaced, or installed.</li> <li>• 11 water pumping stations are rehabilitated and fitted out.</li> <li>• 20 water pumping stations are built.</li> <li>• 8,000 m<sup>3</sup> of water storage is rehabilitated or installed.</li> <li>• 2 wastewater treatment systems are upgraded or expanded.</li> <li>• 6,500 household water connections are legalized or installed in low-income sectors.</li> <li>• 2,000 household sewer connections are installed in low-income sectors.</li> </ul>	<ul style="list-style-type: none"> <li>• Project physical-financial progress reports.</li> <li>• Supervision visits. Management missions.</li> <li>• Project Monitoring and Assessment System reports.</li> <li>• Feasibility and viability studies prepared as a result of technical assistance.</li> <li>• Management audit reports on the company and the concession agreement.</li> </ul>	<ul style="list-style-type: none"> <li>• Timely fulfillment of commitments and requirements established by ENACAL to access IDB and SECO financing.</li> <li>• Studies and designs produce viable projects that meet the eligibility requirements.</li> <li>• Studies and designs for participating cities to be financed with resources outside the program are completed in a timely manner.</li> </ul>

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_/\_/06

Nicaragua. Loan \_\_\_\_\_/SF-NI to the Republic of Nicaragua  
Water Supply and Sanitation Investment 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 Republic of Nicaragua, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a water supply and sanitation investment program. Such financing will be for the amount of up to US\$30,000,000, 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 Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on \_\_\_\_\_ 2006)

LEG/OPR/RGII/IDBDOCS#796071  
NI-L1017