

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**ARGENTINA**

**WATER INFRASTRUCTURE DEVELOPMENT PROGRAM FOR THE  
NORTE GRANDE PROVINCES**

**(AR-L1015)**

**LOAN PROPOSAL**

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### Annex I      Logical framework

### Proposed resolution

Electronic Links and References	
Procurement plan	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=862067">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=862067</a>
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>
Status of loans in execution	<a href="http://ops.iadb.org/approvals/pdfs/ARen.pdf">http://ops.iadb.org/approvals/pdfs/ARen.pdf</a>
Tentative lending program	<a href="http://opsgs1/ABSPRJ/tentativelending.ASP?S=AR&amp;L=EN">http://opsgs1/ABSPRJ/tentativelending.ASP?S=AR&amp;L=EN</a>
Information available in the RE1 technical files	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=862533">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=862533</a>

## ABBREVIATIONS

EIA	Environmental impact assessment
EIRR	Economic internal rate of return
ICAS	Institutional Capacity Assessment System
NPV	Net present value
PTI	Poverty-targeted investment
SAMEEP	Servicio de Agua y Mantenimiento – Empresa del Estado Provincial
SAT-SAPEM	Servicios de Aguas de Tucumán
SEQ	Social equity enhancing project
UCPyPFE	Unidad de Coordinación de Programas y Proyectos con Financiamiento Externo [Coordination Unit for Externally Financed Programs and Projects]
WTP	Willingness to pay

## PROJECT SUMMARY

### ARGENTINA

## WATER INFRASTRUCTURE DEVELOPMENT PROGRAM FOR THE NORTE GRANDE PROVINCES (AR-L1015)

Financial Terms and Conditions <sup>1</sup>				
<b>Borrower:</b> Republic of Argentina <b>Guarantor:</b> Republic of Argentina <b>Executing agency:</b> Ministry of Federal Planning, Public Investment, and Services			Amortization period:	25 years
			Grace period:	6 years
			Disbursement period:	6 years
<b>Source</b>	<b>Amount (US\$ millions)</b>	<b>%</b>	Interest rate:	LIBOR
IDB (Ordinary Capital)	240	80	Inspection and supervision fee:	0%
Local	60	20	Credit fee:	0.25%
Total	300	100	Currency:	US dollars from the Single Currency Facility
Project at a glance				
<b>Project objective:</b> <p>The objective of the program is to contribute to the sustainable economic development of the Norte Grande provinces of Argentina and raise the standard of living of the local population. Its purpose is to promote increased productive activity and social wellbeing, through the environmentally sustainable use of water resources in the provinces of Tucumán, Jujuy, Santiago del Estero, Catamarca, and Chaco.</p>				
<b>Project description:</b> <p>The program will provide a total of US\$300 million in financing for multiple works, distributed tentatively among the following components: (1) hydraulic infrastructure for production; (2) water and sewer systems; and (3) operational and institutional strengthening.</p>				
<b>Special contractual conditions:</b> <p>a) As a condition precedent to the first disbursement, the borrower must: (i) create a program executing unit and assign sufficient staff to run it (paragraph 3.9); (ii) place the operating manual into effect (paragraph 3.10); (iii) sign and place into effect the program participation agreement between the national government and at least one of the eligible provinces (paragraph 3.12); and (iv) approve the first annual work plan for the program (paragraph 3.23).</p> <p>b) As a condition precedent to the first disbursement for works in any province, the program participation agreement between the national government and the respective province must be signed and placed into effect, in accordance with terms agreed on by the borrower, the province, and the Bank (paragraph 3.12).</p> <p>c) Within 12 months after the effective date of the loan contract, the executing agency must engage consulting services to strengthen the entities responsible for regulating water and sanitation services (paragraph 3.16).</p> <p>c) During program execution, the borrower must: (i) Deliver the annual work plan for the subsequent year to the Bank for approval, during the final quarter of each year (paragraph 3.27); (ii) conduct a midterm evaluation based on a midterm report delivered by the Coordination Unit for Externally Financed Programs and Projects (UCPyPFE) (paragraph 3.31); (iii) deliver the final evaluation report prepared by the UCPyPFE (paragraph 3.31); (iv) hold meeting every 18 months to monitor implementation of the action and management plans for water companies and irrigation projects, based on reports delivered by the UCPyPFE (paragraph 3.30); and (v) finalize the respective resettlement plan for affected families prior to awarding the respective works contract (paragraph 4.11).</p>				
<b>Exceptions to Bank policies:</b> <p>None.</p>				
<b>Project consistent with country strategy:</b> Yes [ <input checked="" type="checkbox"/> ]      No [ <input type="checkbox"/> ]				
<b>Project qualifies as:</b> SEQ [ <input type="checkbox"/> ]      PTI [ <input checked="" type="checkbox"/> ]      Sector [ <input type="checkbox"/> ]      Geographic [ <input checked="" type="checkbox"/> ]      Headcount [ <input checked="" type="checkbox"/> ]				

**Procurement:** Works, goods, and consulting services will be procured in accordance with the Bank policies established in documents GN-2349-7 and GN-2350-7 (paragraphs 3.19 and 3.20).

**Verified by CESI on:** 19 December 2005 (project concept document) and 11 August 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. Introduction**

- 1.1 The Water Infrastructure Development Program, part of the Norte Grande Development and Integration Program, will finance water development projects in five provinces: Jujuy, Catamarca, Santiago del Estero, Tucumán, and Chaco. In addressing specific problems (irrigation, drainage, drinking water, sewers), the projects selected for financing will adhere to a strategy based on the wise use of water resources. The Norte Grande omnibus program was conceived by the government as a transfer to help integrate this region's economic and productive development with that of the country as a whole.

### **B. Norte Grande region**

- 1.2 The Norte Grande region comprises the five aforementioned provinces, as well as Corrientes, Formosa, Misiones, and Salta. It is characterized by underdevelopment and high rates of poverty, social exclusion, and marginalization. Nearly eight million people, or 20% of Argentina's population, live in this region, which significantly trails the rest of the country in structural terms. In June 2003, more than 65% of the Norte Grande population was living in poverty, and 33% was living in extreme poverty. The Norte Grande accounts for a mere 10% of gross domestic product and 7% of Argentina's exports. The illiteracy rate is 5.5%, more than double the national average, and the infant mortality rate is 22 deaths per 1,000 live births, compared to the national average of 16.8 deaths per 1,000 live births.
- 1.3 In general, the regional production structure lacks cohesion and has limited infrastructure and unreliable access to services. Agriculture is the primary productive pursuit in the Norte Grande, with the exception of Catamarca, where mining is the predominant activity. Over the last decade, the region has become more strongly agricultural, as new land is converted to production, but recent droughts have caused productivity to fall.

### **C. Water resources: An assessment**

#### **1. Water supply and uses**

- 1.4 **National level.** Argentina has three major climates: humid, semi-arid, and arid. Eighty-five percent of the country's water supply—more than 22,500 cubic meters per inhabitant—is found in the River Plate basin, with greatly pronounced seasonal and interannual variability. As a result of these cycles, regions such as the Norte Grande experience flooding and droughts, extreme events that have been occurring with greater frequency in recent decades.
- 1.5 According to World Bank figures,<sup>1</sup> 30% of the water harvested for various uses in Argentina is groundwater. With respect to consumptive uses, irrigation accounts for 70.5% of the total, followed by drinking water (13%), water for livestock (9%), and

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<sup>1</sup> World Bank: Argentina-Water Resources Management. August 2000.

- industry (7.5%). Taking into account soil suitability and water availability, estimates place Argentina's potential irrigable area at 6.1 million hectares, of which 44% are in arid areas and 56% in humid areas. The country's 1.75 million hectares of irrigated land, or 5% of the country's farmland, generate between 25% and 38% of the value of its agricultural output.
- 1.6 According to 2001 census figures from the Instituto Nacional de Estadística y Censos [National Statistics and Census Institute], 78.6% of Argentina's population has access to water services, and 43% has access to sewer services. Wastewater, only 10% of which is treated, pollutes the country's waterways. Furthermore, the presence of naturally occurring arsenic and nitrate contaminants in groundwater—one of the primary sources of drinking water—at levels that produce a dangerous cumulative effect poses a serious threat to human health.
  - 1.7 **Provincial level.** *Chaco*, like other northeastern provinces in Argentina, has a predominantly humid climate, with annual rainfall between 800 and 1,500 millimeters (mm). The province usually has enough water, but there is groundwater contamination from dilapidated pit latrines and sewer systems. Water services are inefficient. Overuse in some areas has resulted in salinization and contamination of groundwater sources, which often have unacceptable levels of naturally occurring arsenic and fluoride.
  - 1.8 *Santiago del Estero*, on the central pampas, has a semi-arid to arid climate and annual rainfall between 500 and 800 mm. Its main problems include scarcity of water for irrigation, drought and flooding, and obsolescent water regulation structures. In addition, water quality is a problem due to river and aquifer contamination from domestic and industrial waste.
  - 1.9 *Jujuy, Tucumán, and Catamarca*, located in the northwestern part of Argentina, have an arid to semi-arid subtropical mountain climate, a dry winter, and annual rainfall between 100 and 600 mm that varies extensively with elevation. Their aquifers, which are discontinuous and closely associated with intermountain rivers, are vulnerable to salinization from heavy evaporation. Although these three provinces, together with Mendoza, contain 75% of Argentina's irrigated land, most of their lands are salinated or waterlogged, and for the most part irrigation technology has not been modernized. The chief problems are scarcity of water for all types of use, deficiencies in water regulation and drainage structures (particularly severe in the case of Jujuy), and contamination from agrochemicals and waste from industrial and mining processes.

## **2. Legal framework and institutional organization**

- 1.10 At the *national level*, the Ministry of Federal Planning, Public Investment, and Services' Office of the Deputy Secretary for Water Resources sets and implements national water policy, and the Cabinet's Office of the Secretary for the Environment and Sustainable Development sets water conservation policy. The Office of the Secretary for Agriculture, Livestock, Fishing, and Food formulates and finances irrigation projects, and the Ministry of Federal Planning's Office of the Secretary



for Public Works carries out the national government's functions related to water and sanitation policy. The Ministry of Federal Planning's National Agency for Water Sanitation Works is responsible for project financing, administration of funds, and implementation, as well as provision of technical assistance to the provinces and municipios.

### **3. Provincial management of water resources**

- 1.11 In Argentina, provinces have domain over water resources and set their own criteria for allocation, conditions of use, concessions, dispute resolution, rates, etc., in accordance with their water code and other legal regulations. Their legal frameworks establish different forms of institutional organization.

#### **a. Irrigation**

- 1.12 The prevailing management model at the local level is the irrigation consortium. Most provincial laws state that operation and maintenance of secondary irrigation infrastructure must be performed by the users, and operation and maintenance of primary infrastructure must be performed by provincial authorities.
- 1.13 The limiting factors to development of the irrigation sector in Argentina, particularly areas such as Santiago del Estero and Catamarca, are as follows: (i) low institutional capacity at the provincial level and weak interagency coordination; (ii) low coverage of operation and maintenance costs by user fees; (iii) inappropriate technologies for the transmission and distribution of water for irrigation, as well as for livestock and agricultural production, inasmuch as farmers do not use modern technology to produce grains, soilage, produce, and livestock; (iv) land tenure conditions, with many farmers affected by legal uncertainties surrounding land ownership; (v) weaknesses in irrigation infrastructure, which leads to water scarcity at peak times and low efficiency and productivity; and (vi) limited or nonexistent marketing capacity among farmers.<sup>2</sup>

#### **b. Water and sanitation**

- 1.14 **Institutional framework.** At the provincial level, policy-making functions typically reside with the respective economy ministry or office of the secretary for public works. Regulatory and control functions are vested in a regulatory entity created specifically for the water and sanitation sector, in the case of the provinces of Santiago del Estero and Tucumán;<sup>3</sup> in a regulatory entity with oversight of all residential public services, in the case of Jujuy;<sup>4</sup> and in public entities that deliver water and sanitation services autonomously, in an unregulated environment, in the case of Chaco.

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<sup>2</sup> Province of Santiago del Estero: Economic evaluation of the Tuhama project.

<sup>3</sup> Ente Regulador de Servicios de Agua y Cloacas de Tucumán [Tucumán Regulatory Agency for Water and Sewer Services]; Ente Regulador de los Servicios de Agua y Cloacas de Santiago del Estero [Santiago del Estero Regulatory Agency for Water and Sewer Services].

<sup>4</sup> Superintendencia de Servicios Públicos de Jujuy [Office of the Superintendent for Public Services in Jujuy].

- 1.15 The provision of water and sanitation services varies by province. In Catamarca and Santiago del Estero, the largest urban areas and isolated municipios are served by private concessionaires;<sup>5</sup> all other urban and rural areas in these provinces are served by the provincial or municipal authorities, or cooperatives. The private operator in Catamarca has initiated a process to withdraw from its concession contract, in agreement with the provincial government, and the bidding process for the new concession is well under way. In the case of Jujuy, the entire province is served by a corporation<sup>6</sup> located in the provincial capital. In Chaco, water and sanitation services are provided by a provincial company<sup>7</sup> and, to a limited extent, by municipal entities and cooperatives. In Tucumán, a water and sanitation concession was granted to a private company in 1995, but rescinded due to a number of problems in 1997, at which time responsibility for water and sanitation services was transferred to a provincial entity.<sup>8</sup> *[One sentence and one table omitted at the request of the Borrower].*
- 1.16 **Efficiency and cost recovery.** The financial position of companies deteriorated as a result of Argentina's economic crisis, but a slightly positive trend has been observed over the last three years.
- 1.17 **SAMEEP-Chaco** covered its operation and maintenance costs with operating revenue in 2005, but its cash flow before debt service was negative, which has forced the company to take out short-term loans and carry considerable debt. Its liquidity is low due to the large number of short-term accounts receivable and low collection rates.
- 1.18 **SAT SAPEM-Tucumán**, *[One sentence omitted at the request of the Borrower]* had positive cash flow in 2005, due to transfers it received from the province, its efforts to collect accounts in arrears, and loans from the National Agency for Water Sanitation Works. *[One sentence omitted at the request of the Borrower]*. The provincial government of Tucumán issued Decree 2,280, of 20 July 2006, raising the rates for services provided by the company by 13%, which was the first step towards improving its operating performance.
- 1.19 **Aguas del Valle S.A.-Catamarca**, which completed its contract in January 2006, *[One sentence omitted at the request of the Borrower]*, a heavy debt load, negative cash flow financed with short-term loans, *[One sentence omitted at the request of the Borrower]*.
- 1.20 *[One paragraph omitted at the request of the Borrower]*

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<sup>5</sup> Aguas del Valle, in Catamarca; Aguas de Santiago, in Santiago del Estero.

<sup>6</sup> Aguas de Los Andes, S.A., in Jujuy.

<sup>7</sup> Servicio de Agua y Mantenimiento – Empresa del Estado Provincial (SAMEEP), in Chaco.

<sup>8</sup> Sociedad Aguas del Tucumán (SAT-SAPEM).

#### **D. National strategies for regional development**

- 1.21 The Argentine government, as part of its economic recovery strategy, has developed the Norte Grande Development and Integration Program to strengthen the region's economic and production sectors. Because widespread access to infrastructure is seen as key to reducing the inequities that have characterized the region's development, program resources, including both external financing and local counterpart contributions, for infrastructure will be made available to the provinces in the form of a transfer from the national government. In addition to infrastructure, investments are needed to disseminate appropriate technology and strengthen entrepreneurial capacity in the provinces. In addition to the proposed program, the government's Norte Grande program calls for the following three initiatives: Competitiveness Support for Production Chains in the Norte Grande (AR-L1013) (in preparation); Norte Grande Road Infrastructure Program (AR-L1014) (in analysis); and the Norte Grande Electricity Transmission Program (AR-L1021) (approved).

#### **E. The Bank's country and sector strategy**

- 1.22 The main objective of the Bank's strategy with the country (2004-2008)<sup>9</sup> is to help it achieve sustainable and more equitable growth, with special attention placed on regions that are relatively less developed. The country strategy focuses on three main areas: (i) institution-strengthening, for better governance and fiscal sustainability; (ii) creation of a more favorable climate for investment and productivity growth, to enhance the country's competitiveness; and (iii) poverty reduction and promotion of social inclusion. In its midterm review (2006-2008)<sup>10</sup> of the country strategy, the Bank proposes focusing its support on social sectors and sustainable development (infrastructure, technology, agricultural development, tourism). This program contributes to and is guided by the criteria set forth in the country strategy. With regard to water and sanitation, the strategy stipulates that new loans must promote, and provide the necessary support for, institutional arrangements for the provision of services that are financially viable and guarantee the long-term sustainability of the investments. In line with this directive, the Bank and the Argentine government are preparing a new nationwide water and sewer program for communities of up to 50,000 inhabitants. In terms of support for improving the efficiency and quality of public services and infrastructure, the country strategy indicates that the Bank should ensure that new infrastructure loans do not interfere with efforts to resolve pending problems with the renegotiation of concessions. At the request of the national government, the financing originally provided for this program in the country strategy was substantially increased to cover a more ambitious program of investments and to take into account updated project costs.

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<sup>9</sup> Document GN-2328-1, approved on 11 November 2004.

<sup>10</sup> Document GN-2328-3, approved on 11 September 2006.

## **F. The Bank's participation in the sector**

- 1.23 In the farm sector, the provincial agricultural services program, developed to support Argentina's economic recovery (loans contracts 899/OC-AR-1 and 899/OC-AR-2), finances projects that contribute to the administration and management of water resources by strengthening the institutional framework and organizing and involving beneficiaries in operation and maintenance activities.
- 1.24 The Bank has actively participated in the water and sanitation sector in Argentina. In the public sphere, it financed a program to support reform in the water sector (1998), the objective of which was to support the institutional transformation process in which the sector was involved at the time and attract private capital to the sector through a cofinancing system. The country's financial crisis made it impossible to execute the loan, part of which was cancelled and part of which was redirected to social projects. The Bank also financed the sixth stage of the water supply and sanitation program (1995), designed to increase the provision of water and sanitation services in communities of up to 15,000 residents, most of which were run by cooperatives. That program provided 37 communities (250,000 people) with drinking water and 62 communities (450,000 people) with sewer and water treatment services. In the private sphere, the Bank, through its Private Sector Department, invested approximately US\$300 million in Aguas Argentinas, S.A., and Aguas Provinciales de Santa Fe. In the case of these investments, the borrowers were affected by the Economic Emergency Law, which, among other things, froze rates and ended dollar indexing in public service concessions.<sup>11</sup>

## **G. Lessons learned**

- 1.25 **With regard to irrigation projects**, the Bank's experience has generated the following major lessons: (i) projects should include a diverse array of competitive crops; (ii) projects should have reliable technological support and phytosanitary protection; (iii) wise management of natural resources is particularly important in the case of water resources, in order to lower costs and reduce soil salinization and erosion; and (iv) water usage rates should cover, at a minimum, all operation and maintenance costs.
- 1.26 **With regard to water and sanitation**, the cumulative experience from operations in Argentina and other countries suggests that project design should take into account the following: (i) in addition to providing infrastructure financing, projects should promote and support institutions that charge appropriate rates, to guarantee the long-term sustainability of the financed works; (ii) water metering is needed to ensure that rates encourage wise use; (iii) due consideration should be given ahead of time to environmental and social elements, including civil society participation.

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<sup>11</sup> The currency mismatch problem, in which debt is denominated in U.S. dollars, but interest accrues in local currency, and its slow resolution have led to other problems: (i) divestiture in the sectors; (ii) absence of financing by the financial sector.

## **H. Program strategy**

- 1.27 In general, the proposed program has been designed to resolve, through specific projects, some of the problems identified in the assessment, such as flooding in Tucumán (Los Puestos canal); scarcity of irrigation water in Santiago del Estero and Jujuy; water regulation structures in Tucumán, Jujuy, and Santiago del Estero; and contamination of water sources and limited water and sanitation services in Catamarca and Chaco. The program also seeks to improve the management of water companies that have limited capacity in this area and regulatory entities that have a weak institutional structure. Because the program objective of advancing the development of Argentina's northern provinces and underdeveloped rural and urban areas is national in scope, the investments in individual projects will be covered by funds from the national government.
- 1.28 As agreed by the Argentine government and the Bank, projects included in the program must have complete technical designs, be economically viable and financially sustainable, be managed by stable institutions, and guarantee satisfactory environmental management. In the case of projects with irrigation components, the farmers must be organized and the project must be based on a specific business model, in accordance with crop and farmer characteristics. In all cases, the operating income generated by the company or project should cover all operation and maintenance costs associated with the works. In the case of water and sanitation projects, the company or entity providing the service should operate autonomously and be institutionally separate from the provincial or municipal government. Due to the institutional, financial, and operational status of the companies in Chaco, Catamarca, and Tucumán, the program calls for improvements in these areas, based on the needs of each company. In order to obtain financing for works, these companies will be required to sign a program participation agreement establishing the targets and measures that will guarantee the sustainability of water and sewer services, in accordance with the country and sector strategy (paragraph 1.22). The provinces, for their part, will each prepare an action plan. The program will finance the activities described in the plans, including institutional development to strengthen the regulatory capacity of the respective entities.
- 1.29 **The Bank's additionality.** At the regional level, the program is part of a broader policy deployed by the Argentine government to develop and integrate the Norte Grande, through national Bank-financed infrastructure investments to support production. Accordingly, this program will be implemented alongside two other operations, also in preparation, for electricity and road infrastructure, and complemented by an operation to support the competitiveness of the Norte Grande by focusing on the production chains with the greatest potential in the region. Although this program stands on its own merits, a special coordination effort is being made by the various project teams in charge of the design and preparation of these operations, in order to maximize their impact. The Bank's involvement and its financing of this and the other operations will contribute to the economic and social

development of the Norte Grande, by helping the national government make the improvements needed to guarantee sustainable use of this region's water resources. In addition to the justifiable concerns about issues of equity, the Bank and the Argentine government endeavored to select and prepare projects with demonstrated financial and economic viability, and under the institutional strengthening component, approximately US\$20 million in financing will be provided to help service providers achieve institutional sustainability.

## II. PROGRAM

### A. Objective

- 2.1 The objective of the program is to contribute to the sustainable economic development of the Norte Grande provinces of Argentina and raise the standard of living of the local population. Its purpose is to promote increased productive activity and social wellbeing, through the environmentally sustainable use of water resources in the provinces of Tucumán, Jujuy, Santiago del Estero, Catamarca, and Chaco.

### B. Description

- 2.2 The program will provide a total of US\$300 million in financing for multiple works, distributed tentatively among the following components: (1) hydraulic infrastructure for production; (2) water and sewer systems; and (3) operational and institutional strengthening.

#### 1. Hydraulic infrastructure for production (US\$178.3 million)

- 2.3 This component will provide the Norte Grande provinces with hydraulic irrigation infrastructure, to boost agricultural and industrial productivity and protect or reclaim flood-prone land. During program preparation, the following projects were analyzed: (i) Tuhama diversion dike in Santiago del Estero (US\$64.6 million); (ii) El Shincal hydraulic works in Catamarca (US\$6.5 million); Los Puestos flood canal in Tucumán (US\$6.1 million). Contracts for these works will be tendered during the first 18 months of the program. In addition to these projects, which were included in the representative sample, the following proposals have been formally presented by the provinces and will be prepared at the executive level during the first 24 months of the program: the Los Molinos dike and Intervalles canal, in Jujuy; and the Potrero-Las Tables dike, in Tucumán.

#### 2. Water and sewer systems (US\$82.2 million)

- 2.4 The purpose of the component is to expand water and sewer coverage for low-income users through investments to build, upgrade, and/or expand water distribution and wastewater collection and treatment systems. During program preparation, the following projects were analyzed: (i) Resistencia-Colonia Benítez-Margarita Belén aqueduct in Chaco (US\$2.65 million); and (ii) a sewer system and treatment plant in the departments of Fray Mamerto Esquiú and Valle Viejo in Catamarca (US\$11.8 million). As with the projects in the first component, contracts for these works will be tendered during the first 18 months of the program.
- 2.5 In addition to the projects analyzed as part of the representative sample, the provincial governments have formally submitted a list of *potentially eligible projects* to the national government for consideration, as follows: (i) aqueduct from the water purification plant to Quebrada Moreira in Catamarca; (ii) expansion of the Barranqueras water purification plant; (iii) Paraguay River-La Leonesa-Las Palmas raw water supply line; (iv) water purification plant and Bermejo River-Pampa del

Indio-Presidencia Roca raw water supply line; (v) expansion of water services in Gran Resistencia; (vi) sewers in Las Breñas, Chaco; (vii) sewers in Tres Isletas. With the exception of the first project, all are in Chaco.

### **3. Operational and institutional strengthening (US\$22 million)**

- 2.6 This component will provide financing to strengthen the operational and institutional capacity of the provinces and service operators, through the following subcomponents, the sequence of which will be determined during preparation of the action and management plans (paragraphs 3.15 and 4.5):
- 2.7 *Operation of irrigation and drainage districts* (US\$2 million). The program will support activities to strengthen regional irrigation management institutions, establish organizations of users or build the capacity of existing organizations to operate and maintain the districts, build the capacity for dike operation, repair, and maintenance in the case of multiple use works, and organize technical assistance for small farmers.
- 2.8 *Operational management of public service companies* (US\$17.2 million). The program will help make water and sanitation services sustainable by financing activities that will bring about operational and commercial improvements at the companies, such as increased micro-metering and installation of macro-metering devices, design and purchase of specialized software, studies and advisory services to prepare a capital works program, service efficiency, review of rate structures and pricing and the subsidy system, administrative reorganization, better collection rates, implementation of a program to reduce volumes of unaccounted-for water.
- 2.9 *Strengthening of provincial regulation* (US\$2 million). In order to strengthen capacity to regulate and control the use and sustainable management of water resources, the program will support the provincial authorities in their efforts to modernize the laws and policies governing the administration and regulation of water resources. In addition, public service regulatory entities will be given accounting systems and specialized software to help them monitor and control the companies, and their staff will receive training in their duties. Concomitant with activities to strengthen the water and sanitation regulatory entities, specialized (technical, financial, economic) consulting services will be arranged to help regulatory staff perform their duties.
- 2.10 *Strengthening of environmental management* (US\$800,000). The permanent staff of provincial environmental agencies will be complemented by part-time consultants, who will oversee the environmental aspects of projects in execution, review and analyze proposed projects, and train permanent staff.

### **C. Representative sample**

- 2.11 For program preparation and the feasibility assessment, five projects in four of the eligible provinces were selected that represented the types of works called for in the program components. These projects would launch works valued at US\$91.2 million in the program's first year.



- 2.12 **Tuhama diversion dike** – Santiago del Estero (*US\$64.6 million*). The objectives of this project on the Dulce River, 40 kilometers from the city of Santiago del Estero, are to: (i) build an intake structure and a 188-kilometer system of lined canals that will irrigate 28,300 hectares on either side of the canal; and (ii) develop a system of five secondary free-intake canals, to irrigate 5,000 additional hectares and provide water to 25,000 people in small communities and rural areas.
- 2.13 **El Shincal hydraulic works** – Catamarca (*US\$6.5 million*). The main objective of this project is to provide irrigation water for 975 hectares of land near Londres, a community of 3,000 people in western Catamarca. In addition, the province will finance an erosion control and production restructuring plan, including technical assistance and training to improve irrigation efficiency. The availability of sufficient water will pave the way for a shift in production to a high-quality California variety of walnut, which will considerably boost the value of agricultural output and the incomes of the area's 521 farmers, most of whom run small operations.
- 2.14 **Los Puestos canal** – Tucumán (*US\$6.05 million*). The objective of this project is to retrofit a canal that was originally designed as an irrigation canal (Parra canal), so that it can be used as a flood canal. The main impact will be the control of 25-year floods, to protect 2,850 hectares of farmland and some 140 homes.
- 2.15 **Resistencia-Colonia Benítez-Margarita Belén aqueduct** – Chaco (*US\$2.65 million*). The objective of this project is to provide water to these communities, replacing the deep wells currently in use, which produce water with high levels of iron and manganese and do not comply with quality standards. As a result of this project, water will be provided to 9,264 people by 2008 and 13,300 people by 2016.
- 2.16 **Sewer system in Fray Mamerto Esquiú and Valle Viejo and expansion of the treatment plant** – Catamarca (*US\$11.8 million*). The objective of this project is to build a sewer system and treatment plant in these two departments, reducing the negative environmental impact that the individual systems now in use have on neighboring communities, as well as on existing waterways. This project will benefit an estimated 21,000 people living in the two departments.

**D. Indirect and associated costs**

- 2.17 **Engineering, administration, and inspection (US\$12.5 million)**. The indirect costs associated with engineering, administration, and inspection are as follows: (i) preinvestment costs; (ii) commission of an independent inspection of civil and electromechanical works and the socioenvironmental mitigation and compensation programs; (iii) the costs of running the program executing unit and retaining staff to work exclusively on the water infrastructure program, and part of the costs of the staff and equipment shared with the road infrastructure program; and (iv) the contracting of independent consultants to verify the adoption of measures stipulated in the action and management plans.

- 2.18 In addition to the preinvestment costs associated with the program, a decision was made with the Argentine government to finance teams to conduct exploratory and feasibility studies for dam safety projects, as the basis for a second phase of this program in northwestern Argentina.

#### **E. Cost and financing**

- 2.19 The total estimated cost of the program is US\$300 million. The Bank will provide financing of up to US\$240 million from Ordinary Capital, and Argentina's National Treasury will provide US\$60 million in local counterpart contributions. Works and equipment costs include the value-added tax, regional taxes, and import tariffs.

#### **Cost and financing (in US\$ thousands)**

<b>Category</b>	<b>IDB</b>	<b>Local</b>	<b>Total</b>	<b>%</b>
<b>I. Engineering and administration</b>	<b>12,500</b>	<b>0</b>	<b>12,500</b>	<b>4.2</b>
1.1 Executing unit	2,500		2,500	0.8
1.2 Management and supervision of works	5,000		5,000	1.7
1.3 Studies and projects	5,000		5,000	1.7
<b>II. Direct costs</b>	<b>225,500</b>	<b>57,000</b>	<b>282,500</b>	<b>94.1</b>
2.1 Hydraulic infrastructure for production	138,300	40,000	178,300	59.4
2.2 Water and sanitation systems	65,200	17,000	82,200	27.4
2.3 Operational and institutional strengthening	22,000		22,000	7.3
<b>III Associated costs</b>	<b>2,000</b>	<b>0</b>	<b>2,000</b>	<b>0.7</b>
3.1 Audits, evaluations, and monitoring	2,000		2,000	0.7
<b>IV Financial costs</b>	<b>0</b>	<b>3,000</b>	<b>3,000</b>	<b>1.0</b>
4.1 Interest		2,800	2,800	0.9
4.2 Credit fee	0	200	200	0.1
<b>Total</b>	<b>240,000</b>	<b>60,000</b>	<b>300,000</b>	<b>100.0</b>
<b>%</b>	<b>80</b>	<b>20</b>	<b>100</b>	

### III. EXECUTION

#### A. Borrower, guarantor, and executing agency

- 3.1 The borrower and guarantor will be the Republic of Argentina. The executing agency will be the Ministry of Federal Planning, Public Investment, and Services, through the Coordination Unit for Externally Financed Programs and Projects (UCPyPFE), which will create the program executing unit. The UCPyPFE is currently executing several externally financed programs.<sup>12</sup>

#### B. Program execution and management

##### 1. Interagency coordination

- 3.2 The executing agency will coordinate as necessary with other centralized and decentralized entities at the national level and the provincial governments for program execution. However, the provinces will not receive transfers of program funds, nor will they handle resources, procurements, contracting, or payments, as these functions will be carried out at the central level. Although it is not expected that coordination of Bank-financed programs in the Norte Grande will be necessary for the execution of works, special attention will be paid to these aspects in the event that any problems arise during the execution period.
- 3.3 The program executing unit will be responsible for the operational execution of the program. The provincial governments may participate in program execution by designating a provincial entity with expertise in the types of works to be executed in the respective province with program resources.
- 3.4 The Ministry of Federal Planning, Public Investment, and Services will sign a **program participation agreement** with every province, requiring each to, *inter alia*: (a) meet the eligibility criteria for specific projects in the province (paragraph 3.16); (b) designate a provincial entity in their jurisdiction to coordinate the activities needed to meet program objectives, and allocate the human, technical, and administrative resources needed to fulfill contractual obligations; (c) take receipt of program-financed works and equipment; and (d) guarantee that, once the works have been received, sufficient human, physical, and financial resources are in place to ensure their operation and maintenance, in accordance with a plan approved ahead of time and pursuant to Argentina's Fiscal Responsibility Law.

##### 2. Program executing unit

- 3.5 The program executing unit, attached to the UCPyPFE, will be responsible for the management and operational execution of the program.

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<sup>12</sup> The UCPyPFE is executing the following Bank-financed programs and projects: National 700 schools program; emergency program for recovery of areas affected by flooding; national road corridors, and the port modernization program. In addition, it is preparing the road infrastructure program under the integrated development of the Norte Grande.

- 3.6 Ultimate decision-making authority for the program will rest with the general coordinator and deputy coordinator of the UCPyPFE, who will serve as the national directors for the program. Their chief functions are described in the program operating manual.
- 3.7 The program executing unit created for this operation and the Norte Grande road infrastructure program (AR-L1014) will coordinate and execute all program activities, including procurements and payments. It will be led by an executive coordinator, who will report to the national directors for the program, and a deputy executive coordinator, both of whom will have relevant experience managing programs financed by multilateral banks. They will direct and supervise the division coordinators in the executing unit.
- 3.8 The program executing unit will be solely responsible to the Bank for consolidating administrative/financial information, analyzing and overseeing technical and environmental aspects, and monitoring and evaluating projects. Its main functions will be to: (i) prepare an annual schedule of program activities; (ii) keep program books in accordance with applicable Argentine laws and Bank policies; (iii) prepare and process disbursement requests and the corresponding supporting documents and submit these, as requested, to the national authorities and the Bank; (iv) set up and maintain program files; (v) prepare the technical and legal information for procurement processes; (vi) issue payments to contractors and suppliers; (vii) monitor the technical and environmental aspects of projects and supervise program-financed activities; (viii) support and supervise the work of environmental consultants in the provinces; and (ix) contract, and serve as counterpart for, the external audit.
- 3.9 The loan contract with the Bank will be approved by a decree issued by the national government authorizing the executive branch to delegate program management to the UCPyPFE and create the program executing unit. **The creation of the program executing unit and the assignment of sufficient staff to run it according to terms of reference agreed on with the Bank will be a condition precedent to the first disbursement of the loan proceeds.**

**C. Program operating manual**

- 3.10 The operating manual contains, *inter alia*, the terms and conditions of program execution, including: the functions and responsibilities of each division of the program executing unit and the corresponding interagency coordination needs; the eligibility criteria for program financing for provinces, works, operational and institutional strengthening proposals, and preinvestment studies; procurement criteria and procedures. **The entry into force of the operating manual and its annexes will be a condition precedent to the first disbursement of loan proceeds.** The operating manual will be approved and placed into effect through a resolution adopted by the Ministry of Federal Planning, Public Investment, and Services.

## 1. Eligibility criteria for participating provinces

- 3.11 The following criteria will be used to select the provinces that will participate in the program. The provinces must: (i) be located in northeastern or northwestern Argentina; (ii) sign the program participation agreement and its annexes; (iii) allocate and demonstrate that they have sufficient budgetary resources to run and maintain program-financed works, as applicable; and (iv) demonstrate sufficient institutional capacity to run the projects they propose.
- 3.12 By signing the *program participation agreement*, the provinces commit, as applicable, to promote and include: (i) the targets and measures that will lead to sustainable services, in the case of water and sewer projects; and (ii) the basic components of the *management plan*, in the case of irrigation and drainage projects, to ensure the sustainable management of the systems. **As a condition precedent to the first disbursement of loan proceeds, at least one program participation agreement between the Argentine government and a province must be signed and placed into effect. As a condition precedent to the disbursement of proceeds for the projects in each province, the respective program participation and works transfer agreement containing the targets and measures that will guarantee sustainable services must be signed and placed into effect, in accordance with terms agreed on by the borrower, the province, and the Bank.**

## 2. Eligibility criteria for projects and studies

- 3.13 The UCPyPFE has compiled and agreed with the Bank on a list of projects distributed among the three components. During execution, it *may replace one of the projects or propose a new project* if the authorities of the participating provinces submit a request that the executing agency feels is justified, there is an unjustifiable delay in completing the preparation process, or any of the following eligibility criteria from the operating manual is not met.
- 3.14 Without exception, the following *general eligibility criteria* must be met for projects to be considered and financed under the program:
- a. The works are designed for the use or management of water resources for irrigation, drainage, or flood control purposes, or for the provision of water and sewer services;
  - b. Technical, legal, institutional, financial, socioenvironmental, and economic<sup>13</sup> viability has been demonstrated by satisfactory studies that have been approved by the program executing unit and have the nonobjection of the Bank;
  - c. The province must have fulfilled and/or be in the process of fulfilling the targets and actions established in the program participation agreement;

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<sup>13</sup> Economic viability includes an internal rate of return in excess of 12%.

- d. The service operator's revenue must cover the operation and maintenance costs of existing and new works;
  - e. The works, once completed, must be operated and maintained, in the respective provinces, by organizations with sufficient and sustainable institutional capacity. These may be government institutions, a public utility company that holds a concession, or an organization of users, as applicable;
  - f. With regard to the environmental aspects of the program, each project must comply with the applicable environmental laws in the respective province, applicable Bank policies, and the requirements set forth in Annex I to the operating manual:
    - (i) Provide an environmental impact assessment (EIA) acceptable to the environmental authority of the respective province and the Bank that incorporates the results of public consultations;
    - (ii) Include mitigation measures and programs for the construction and operation phases, particularly in the case of projects involving resettlements<sup>14</sup> or negative impacts on indigenous communities.<sup>15</sup>
    - (iii) Budget all costs associated with execution of the environmental management plan for the construction phase and the mitigation and monitoring programs for the operation phase;
    - (iv) Demonstrate sustainability from an environmental and social standpoint, which entails preventing: (a) permanent negative impacts on protected areas; (b) negative impacts on species threatened by extinction; (c) negative environmental impacts that cannot be mitigated to acceptable levels; and (d) social costs deemed unacceptable and/or unmitigable by the affected communities. In addition, all projects must meet the environmental requirements stipulated in Annex II to the operating manual.
- 3.15 **Eligibility criteria for irrigation and drainage projects – management plans.** A **management plan** for project works must be adopted that is acceptable to the Bank and meets the following criteria: (i) either the farmers must be organized or justification for the proposed organizational model must be presented; (ii) the project must include a proposal for recovery of the operation and maintenance costs associated with irrigation infrastructure; (iii) a clear assessment of the physical and legal cadastral and land tenure situation must be available and, as necessary, a method for assigning public land must be developed; (iv) the project must use financially viable business models in accordance with crop and farmer

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<sup>14</sup> In the case of projects that require resettlements, a resettlement and compensation plan must be prepared and presented in accordance with Bank Policy OP-710.

<sup>15</sup> Projects that affect indigenous communities must comply with the Bank's Operational Policy on Indigenous Peoples, published in February 2006, and the applicable national and provincial laws.

characteristics; (v) the proposed irrigation technology must be technically viable, guarantee efficient water use, and be environmentally sustainable; (vi) operating rules for the irrigation districts must be developed that make it possible to assign water by property in a way that balances the needs of the different users; and (vii) technology-transfer mechanisms must be implemented that incorporate training and technical assistance for users and farmers on good irrigation practices, wise use of agrochemicals, and soil conservation.

- 3.16 **Eligibility criteria for water and sewer projects:** (i) the utility must be provided by a public entity that is autonomous from the provincial government or a private company with a concession that is in effect during project execution; (ii) the regulatory entity must have sufficient capacity to monitor the efficiency and sustainability of water and sewer services, or the province must have embarked on a process to strengthen the regulatory entity and give it autonomy; (iii) the province ensures the sustainability of the water and sewer services; (iv) the province must demonstrate that progress is being made to reach the targets and take the actions set forth in the respective program participation and works transfer agreement, except in the case of works included in the representative sample, which will become eligible for program financing upon the signing of the program participation and works transfer agreement. In Catamarca, a concession must be signed before water and sewer projects can become eligible for program financing. **Consulting services to strengthen the regulatory entities must be engaged within 12 months after the effective date of the loan contract.**
- 3.17 Provinces and companies will have access to program financing for preinvestment studies and *operational and institutional strengthening activities* as soon as they sign the program participation agreement.

#### **D. Operation and maintenance of works**

- 3.18 Upon completion, works executed under this program will be transferred to the provinces, through the companies or entities that will operate and maintain them in accordance with the laws and regulations in force in the respective provinces. Prior to issuing a call for bids for works, the executing *agency* will submit evidence that it has signed a works transfer agreement with each province.

#### **E. Procurement**

- 3.19 **Goods and works.** The rules and procedures for the procurement of goods and works during program execution will be consistent, as stipulated in the loan contract, with the policies set forth in document GN-2349-7 of February 2006 ("Policies for the Procurement of Goods and Works Financed by the Inter-American Development Bank"). All goods and works to be procured under the program will be listed in the procurement plan and the annual work plans in effect and previously approved by the Bank. Any works not included in these plans may be incorporated subsequently subject to the Bank's agreement.

- 3.20 **Consulting services.** The rules and procedures for engaging consulting services during program execution will be consistent, as stipulated in the loan contract, with the policies set forth in document GN-2350-7 of February 2006 (“Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank”). All consulting services to be procured under the program will be listed in the procurement plan and the annual work plans in effect and previously approved by the Bank.

**F. Revolving fund**

- 3.21 The revolving fund for the program will be up to US\$12 million, equivalent to 5% of the Bank’s loan. Loan proceeds will be disbursed to replenish the revolving fund to the agreed on level. On an exceptional basis and when duly justified, the Bank, at its discretion, may make direct disbursements. The status and adequacy of the revolving fund will be noted in semiannual reports to the Bank.

**G. Accounting records and control of disbursements**

- 3.22 The program executing unit, in accordance with provisions established by the Ministry of Economy, will open specific and separate bank accounts for the loan proceeds and local counterpart resources. It will also keep records of financial transactions and disbursements during program execution and maintain financial information on the program.
- 3.23 **Annual work plan.** Annual work plans, which contain the main investments and contractual commitments for a given year, will be presented to the Bank for approval in the final quarter of each year. **Approval of the 2007 annual work plan will be a condition precedent to the first disbursement of the loan proceeds.**

**H. External audit**

- 3.24 An external audit will be performed by auditors acceptable to the Bank, in accordance with the policies set forth in documents AF-100 and AF-300 and based on terms of reference previously agreed on with the Bank (document AF-400). Annual audited financial statements for the program will be delivered within 120 days after the end of each fiscal year, and a final statement will be delivered within 120 days after the date of the last disbursement. The cost of the audit will be included as part of the cost of the program and financed with proceeds from the Bank’s loan.

**I. Disbursement schedule**

- 3.25 Table III-1 presents the tentative schedule of annual disbursements of the loan proceeds.



Table III-1 (US\$ millions)

	2007	2008	2009	2010	2011	2012	Total	%
IDB	11.0	52.8	67.5	62.9	39.6	6.2	240.0	80%
Local	0.9	11.9	17.6	17.1	11.2	1.3	60.0	20%
<b>Total</b>	<b>11.9</b>	<b>64.7</b>	<b>85.1</b>	<b>80.0</b>	<b>50.8</b>	<b>7.5</b>	<b>300.0</b>	<b>100%</b>
%	4%	22%	28%	27%	17%	2%	100%	

## J. Monitoring and evaluation

- 3.26 **Supervision.** The Bank's Country Office in Argentina will supervise the program, using information provided by the executing agency, in accordance with the instruments approved by the Bank for administration of operations.
- 3.27 **Progress reports.** The UCPyPFE will deliver **semiannual reports** to the Bank on the status of the program within 60 days after the end of each six-month period. The logical framework (Annex I) presents the indicators and means of verification that will be used to monitor the progress of each project and prepare the corresponding reports. **During the final quarter of each year, the program executing unit will deliver the annual work plan for the subsequent year to the Bank for approval.** These reports will be used by the Bank to monitor program execution and will provide the information needed to update the project performance monitoring report system.
- 3.28 In connection with the operational and institutional strengthening component, the following table presents operational indicators for water and sanitation companies and the corresponding targets. By meeting these targets, the companies will help make water and sewer services sustainable. The performance of these indicators will be monitored every 18 months (paragraph 3.30).

Operational Indicators of Water and Sewer Companies						
Province	Catamarca		Chaco		Tucumán	
Year	2005	2012	2005	2012	2005	2012
Unaccounted-for water [%]	50	30	45	30	50	30
Macrometering [%]	0	100	0	100	0	100
Micrometering [%]	27.7	75.0	39.8	85.0	1.0	50.0
Collection rate [%]	57.2	>85	75.9	>85	71.8	>85
Coverage of operation and maintenance costs [%]	75.9	115.0	110.5	115.0	97.2	115.0

- 3.29 **Technical inspection and environmental supervision.** Works and equipment will be inspected by the program executing unit, with the support of a specialized, independent consulting firm. Socioenvironmental mitigation and compensation plans for program works will be supervised by the entities that will operate and maintain the works upon completion. Consulting services for the inspection of the works and for the socioenvironmental mitigation and compensation plans will be

engaged before the contracts for the respective works are signed, according to terms agreed on with the Bank.

- 3.30 **Monitoring of action and management plans.** To verify the implementation status of action plans, in the case of water and sanitation projects, and management plans, in the case of irrigation projects, **the executing agency will deliver a report to the Bank every 18 months that allows it to monitor the implementation of the agreed on action and management plans.** For water and sanitation projects, reports will be based on information gathered by consultants hired for such purposes by the program executing unit, and later, on information provided by the strengthened regulatory entities. For irrigation projects, the respective provincial entities will provide the reports. Reports on water projects will describe the performance of the main operational indicators of the entities providing water services, such as service coverage, reductions in physical and commercial losses, micrometering coverage, collection rates, and coverage of operation and maintenance costs. Reports on irrigation projects will describe progress made in organizing users, coverage of technical assistance services, and coverage of operation and maintenance costs by the entities managing the projects.
- 3.31 **Evaluation.** A **monitoring and evaluation system**, which calls for the design of an appropriate baseline for both water/sanitation and irrigation projects, will be used throughout the program's six-year execution period. **Based on the midterm report to be delivered by the UCPyPFE within 30 days after 50% of the Bank's loan has been disbursed or 36 months into program execution, the executing agency and the Bank will conduct a joint midterm evaluation** to verify fulfillment of the targets agreed on and compliance with other contractual commitments and will recommend any necessary corrective actions. **The final evaluation report will be delivered within 30 days after 90% of the Bank's loan has been disbursed.** The UCPyPFE will gather and make available all information, indicators, and parameters needed to prepare the project completion report.

## **IV. VIABILITY AND RISKS**

### **A. Institutional viability**

- 4.1 The conception and development of plans for the Norte Grande in the sector targeted by this program will be the responsibility of the Ministry of Federal Planning, Public Investment, and Services' Office of the Secretary for Public Works, through the Offices of the Deputy Secretaries for Public Works and Water Resources, which work alongside the provinces on federal councils within the government's federal framework.
- 4.2 Inasmuch as it has worked on all aspects of externally financed infrastructure projects, the Coordination Unit for Externally Financed Programs and Projects (UCPyPFE) has sufficient experience to execute the works proposed under this program. The findings of an analysis performed using the Institutional Capacity Assessment System (ICAS) indicate that the UCPyPFE has a satisfactory development level and low risk.<sup>16</sup> However, these same findings identified the need to strengthen the UCPyPFE, given the number of preinvestment studies and works it will have to contract and supervise and the number of projects in execution and preparation.
- 4.3 Institutional capacity at the provincial level for the construction of works, operation of water and sewer companies, and management of risk will be strengthened under the program's operational and institutional strengthening component. To build provincial entities' environmental and social management capacity, consultants will be hired during works construction to work in coordination with the respective provincial entities. In addition, in response to weaknesses found in the provincial regulatory entities, and while activities are being pursued to strengthen the regulatory entity and make it autonomous, a multidisciplinary team of consultants will be hired to advise the entities on how to perform their regulatory and control functions autonomously from the provincial governments.

### **B. Financial viability**

- 4.4 Counterpart financing for program works will be provided by the National Treasury as a contribution to the development of the Norte Grande region, and the national government will repay the loan. Upon completion, the works will be run and maintained by the provinces. Inasmuch as the national government has prioritized these works for the sustainable use of water resources, they should be included in the national budget, in accordance with the guidelines of the Financial Management and Expenditure Control Law, and therefore the counterpart contribution is considered to be duly guaranteed.

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<sup>16</sup> The ICAS findings indicate that, in general, the UCPyPFE has a low-medium risk associated with the three subsystems assessed by this tool: planning and organizational capacity (satisfactory development; low risk); execution capacity, including personnel, goods, and financial management (satisfactory development; low risk); and internal and external control capacity (medium development, medium risk).

- 4.5 **Action and management plans.** In order to achieve and maintain the sustainability of water and sewer services, the program calls for the provinces to adopt action plans that include not only commitments, but activities to strengthen the operational and commercial management of the operators. The basic activities contained in the plans will be: the installation of micrometering and macrometering equipment; the update of the registry of users and networks; a reduction in unaccounted-for water; an increase in operational efficiency; the adoption of the administrative and commercial management measures needed to increase collection rates; an analysis of the costs, level, and structure of rates; regularization of the concession with the respective province; a commitment by the province to allocate the budgetary resources and process subsidies for low-income users on time; an agreement by the province to pay off its debt to the service operator; strengthening of the administrative, commercial, and financial management capacity of the operating entities; and strengthening of the regulatory entity. In the case of irrigation projects, management plans will contain the activities described in paragraph 3.15. Program resources may be used to finance the activities described in the action and management plans.
- 4.6 **Financial viability of the companies.** Several estimates of the financial viability of the companies in Chaco, Tucumán, and Catamarca were prepared, based on the commitments each will assume in the respective program participation agreements and action plans with regard to increases in collection levels, payment of subsidies and debts by the provinces, reduction in the companies' operating costs, and incremental rate adjustments. The financial projections take into account the impact on costs and income of program-financed works, as well as the impact of various combinations of the aforementioned parameters. These projections indicate that if current conditions persist, with no changes in operating costs or rates, the companies will continue to have negative cash flow and their financial positions will gradually deteriorate (see Chaco and Tucumán). However, if the companies are able to meet the targets and adopt the measures established in the program participation agreements, and implement the respective action plans, they will achieve financial sustainability during the life of the program. In the case of Catamarca, the assumption is that the company will be financially viable if it fulfills the objectives of its concession.

#### **C. Technical viability**

- 4.7 The program's technical viability was determined by conducting a detailed review of the basic engineering studies and the designs and unit costs of each of the projects included in the representative sample reviewed during program analysis, and identifying changes and complementary studies that should be incorporated in the respective bidding documents. Special attention was placed on analyzing the water balances of planned hydraulic works and identifying low-cost design and construction solutions. For other projects listed as potentially eligible for program financing, information is provided on the hydrologic conditions of the region and other conditions observed during visits to works sites.

## **D. Economic viability**

### **1. Benefits and beneficiaries**

- 4.8 Through hydraulic works projects for agricultural production and multiple uses, 95,000 new hectares will be converted to irrigated farmland. Through public utility projects, nearly one million people, principally in low-income groups, will gain new or better access to water of sufficient quality and quantity; more than 55,000 people will be connected to the sewer system, thus expanding the coverage of basic sanitation services for low-income communities; and 70,000 people will receive protection in the form of flood control and activities to prevent significant damage to private property and public infrastructure.

### **2. Cost-benefit analysis**

- 4.9 The economic viability of the program was determined by conducting a cost-benefit analysis for each of the projects initially selected for program execution, using the most effective methods to estimate the economic internal rate of return (EIRR). The findings are presented below:
- a. **Tuhama irrigation project.** The analysis of this project was run using market prices and social prices, corrected for products and inputs. The cost estimates included the value of the infrastructure and the value of the complementary components (technical assistance, land tenure management, commercial assistance). Benefits were calculated by comparing output after the process to restructure production with current output. Based on the studies, an EIRR of 19% has been estimated, which indicates that the project is viable. A sensitivity analysis was performed, and even under an extreme scenario in which benefits are 20% lower and costs are 20% higher, the EIRR is 13.5%.
  - b. **El Shincal project.** Using a methodology similar to that used for the previous project, the analysis was run for private prices and social prices, and the cost estimates included the value of the infrastructure, as well as the complementary costs associated with restructuring production. The EIRR for this project has been estimated at 16.7% and is not very sensitive to variations in investment costs. However, if the price of walnuts were to drop by 20% (from US\$9.14 to US\$7.31 per kilogram), the EIRR would fall to 11.2%.
  - c. **Los Puestos canal.** The feasibility analysis was conducted by mapping the extent of inundation for floods of 2- to 200-year recurrence intervals for different waterways, with benefits calculated from the probability-damage curve for scenarios with and without rainwater drainage works. The benefits associated with preventing annual average damage of 4.7 million Argentine pesos (Arg\$) can be attributed to: a decrease in soybean and meat production losses, savings in home repairs and replacements of furnishings, and lower repair costs for road and service infrastructure. Indirect benefits result from the prevention of missed work and school, loss of life, and damage to health. The estimated EIRR for this project is 31%, and the net present value

(NPV) (12%) is Arg\$4.9 million. Under a scenario in which total costs are 20% higher and benefits are 20% lower, the EIRR falls to 19.5%.

- d. **Resistencia-Colonia Benítez-Margarita Belén water project.** Project benefits were calculated based on the findings of a survey that estimated willingness to pay (WTP) for water of sufficient quality. The survey found that, on average, users would be willing to pay a rate of Arg\$19.5 for water of sufficient quality. The economic costs of the project were calculated using ratios that varied between 0.6 and 0.7 for labor and materials. Based on these assumptions, an EIRR of 15.9% and an NPV (12%) of Arg\$1.04 million were estimated, which demonstrates the economic viability of this project.
- e. **Sewer system and treatment plant in Valle Viejo-Fray Mamerto Esquiú, Catamarca.** The analysis took into account benefits derived from the WTP and externalities resulting from a lower incidence of waterborne disease among the population in the two departments. The WTP of Arg\$30.63 corresponds to an estimate of hedonic prices derived from the survey of project beneficiaries.<sup>17</sup> The treatment plant will generate environmental benefits and externalities that reach the entire community and will pave the way for future expansions of the network to communities outside the project's area of influence. Based on this methodology, an EIRR of 15.02% and a NPV (12%) of Arg\$3.33 million were estimated, which demonstrates the economic viability of this project.

### 3. PTI/SEQ analysis

- 4.10 This program qualifies as a social equity enhancing project (SEQ) and a poverty-targeted investment (PTI) from both a geographic and headcount standpoint.

#### E. Environmental and social impacts and program strategy

- 4.11 **Analysis of the sample.** The potential environmental and social impacts of the program were evaluated using a sample of five projects, representative of the types of projects that will be eligible for program financing, as follows: an aqueduct; a sewer system and wastewater treatment plant; rehabilitation of a drainage canal for flood-prone land; and two irrigation systems. An environmental impact assessment (EIA) was prepared for each project in the sample to determine environmental and social impacts. The EIA for each project in the sample identified very positive **social** impacts resulting from improvements in water quality, the provision of good quality water, the development of sustainable irrigation systems, the lowering of flood risk, and the opportunity to boost income and secure permanent employment. Most of the **direct** negative impacts that were identified can be mitigated by implementing good practices in construction and management during both the

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<sup>17</sup> The estimated WTP was updated using the salary variation ratio published by the Instituto Nacional de Estadística y Censos [National Statistics and Census Institute].

execution and operations phases of program works. Additional financing has been budgeted for unanticipated impacts, and the bidding documents describe measures that must be adopted by contractors to minimize negative impacts. The potential **indirect** impacts identified in the EIAs can be mitigated by: investments for conservation of biodiversity, implementation of environmental management programs during the operations phase, environmental monitoring programs, good practices in the use of agrochemicals, contingency plans, technical support and training programs for users of irrigation systems, and compliance with interagency agreements for the management of water resources. No significant **resettlement** activities are anticipated. Resettlement will only be required in one of the projects in the sample. In this case, approximately 13 families will be relocated, at an approximate cost of Arg\$40,000 per family. A preliminary resettlement plan has been drawn up for these families. **A final resettlement plan for families affected by any work will be a condition precedent to the award of the respective works contract.**

- 4.12 **Public consultations.** Public meetings were held in the communities affected by the sample projects. During the consultations, these communities expressed strong support and interest and made suggestions to maximize project benefits. All substantive recommendations were incorporated into the EIAs and the respective designs.
- 4.13 **Environmental and social management plan.** The environmental and social management plan is part of the operating manual and includes: (i) eligibility criteria for future projects; (ii) procedures and guidelines for preparing an EIA; (iii) procedures for public consultations; (iv) identification of measures to mitigate direct and indirect impacts, to be included in the program budget; (v) mechanisms for monitoring and oversight of program execution; (vi) contracting of personnel to support the executing agency and the provincial environmental agencies; and (vii) terms of reference for annual independent audits to be commissioned by the program executing unit.
- 4.14 **Compliance with country and Bank policies.** It was determined that: (i) the projects in the sample comply with applicable environmental regulations (OP-703); (ii) the unit responsible for program preparation complied with the Bank's disclosure of information policy (OP-102) by making the EIAs available to the public in the provinces from 23 to 30 May 2006; (iii) the Tuhama diversion dike will be in compliance with the Bank's involuntary resettlement policy (OP-710) upon delivery of the resettlement plan.
- 4.15 **Institutional capacity.** The provincial environmental agencies have a limited number of qualified technical specialists and no supplementary personnel to take on the additional work of executing projects under the proposed program. Program resources will be used to supplement the technical staff at each provincial agency by contracting an environmental specialist to oversee implementation of the environmental management plans for the projects and determine whether the environmental criteria set forth in the operating manual have been met. The

executing agency will apply and enforce the requirements established in the operating manual for the entire program and support and supervise the environmental consultants in the provinces, with the assistance of a consultant hired with program resources.

- 4.16 **Independent environmental audits.** The program will be subject to independent environmental audits, and the corresponding reports will be delivered to the Bank on an annual basis.

**F. Special considerations and risks**

- 4.17 The main risks to the program are: (i) the discrepancy between the way in which water and sanitation companies work and the elements needed to properly run the program-financed works. This is reflected primarily in the low efficiency of the companies, the absence of micrometering, delays in the renegotiation of rate adjustments, and the weaknesses of regulatory agencies, all of which make it hard to properly run and maintain works; (ii) the identification of a new concessionaire to provide services in Catamarca; (iii) the possibility of insufficient coordination between the national government, in its dual capacity as provider of resources and the executing agency, and the provinces, in their capacity as service operators. In addition, in the case of irrigation projects, collecting on enough irrigation bills to at least cover operation and maintenance costs will be a major challenge, given the low collection rates in most provinces.
- 4.18 To lower these risks, the program calls for specific action in each province: (i) the preparation and implementation of an action plan that will allow the water and sanitation companies to achieve financial sustainability and a management plan for irrigation projects; and (ii) a program participation agreement signed by the national government and the provinces should help to resolve any coordination problems. However, the weak institutional framework in which the companies operate and the problems that were identified in the regulatory entities constitute a significant challenge to implementation of the action plans for the water companies and the management plans for irrigation projects. Accordingly, the program has designed detailed mechanisms for monitoring and overseeing program execution, such as the delivery of progress reports every 18 months and the contracting of consultants by the program executing unit to monitor fulfillment of the targets set in the action and management plans. Moreover, as part of the eligibility criteria for works proposed by them (with the exception of works included in the sample), the provinces must demonstrate that they are making progress towards meeting the targets and adopting the measures that will make services sustainable.