

## **CARTAGENA SEWER SYSTEM**

**(CO-0227)**

### **EXECUTIVE SUMMARY**

**BORROWER:** Cartagena Tourism and Cultural District

**GUARANTOR:** Republic of Colombia

**EXECUTING AGENCY:** Aguas de Cartagena, S.A., E.S.P.

**AMOUNT AND SOURCE:** IDB: US\$24.3 million (OC)  
Local counterpart funding: US\$16.2 million  
Total: US\$40.5 million

**FINANCIAL  
TERMS AND  
CONDITIONS:** Amortization period: 20 years  
Disbursement period: 3 years  
Grace period: 3 years  
Interest rate: variable  
Inspection and supervision: 1%  
Credit fee: 0.75%  
Currency: U.S. dollars, Single  
Currency Facility

**OBJECTIVE:** The objective of the project is to improve sanitation conditions in areas of Cartagena that drain into Cartagena Bay. This project is the first stage of a broader program that will also expand the city's water system and increase water production, extend the sewer system to other areas of the city, and devise a sewage treatment and final disposal system.

**DESCRIPTION:** The project has three components:

**Sewer construction in southwest Cartagena  
(US\$10.5 million)**

Investments under this component will expand sewer-system coverage in six subbasins in southwest Cartagena that drain into Cartagena Bay, which are home to low-income residents. These capital outlays are the sum total of the investments planned for this drainage area in the Sewerage Master Plan.

**Rehabilitation of sewer lines in Bocagrande  
(US\$6.3 million)**

Investments in this component will be to rehabilitate secondary sewer lines in the Bocagrande district,

which is the site of much of the city's hotel stock. The current sewers have insufficient capacity and are past their service life, triggering surface runoff of sewage into Cartagena Bay when there are overflows at pumping stations.

**Sewage disposal (US\$14.1 million)**

Included in this component are collector sewers and pumping stations to convey, through the existing underwater outfall, sewage from all the project areas and other parts of the city that drain into the bay; rehabilitation of the existing outfall; and chlorine treatment of all effluent flowing through that structure.

**ENVIRONMENTAL  
REVIEW:**

The environment and social impact report for the project was approved by the Committee on Environment and Social Impact at its meeting on January 18, 1998. The environmental measures set out in the report, which have been built into the project, are as follows: (i) alleviation of adverse impacts during construction through an environmental management plan to be included in the bid documents; (ii) the requirement, as a condition precedent for tendering works for one of the pumping stations, that families affected by the construction for that facility have been compensated/resettled; (iii) establishment of a plan for monitoring water quality in the bay; and (iv) monitoring of the solution devised for the city's sewage treatment and disposal problem, currently under study by a consulting firm.

**POVERTY-TARGETING:**

This project does not qualify as poverty-targeted under the terms of the Eighth Replenishment mandates on poverty alleviation and the implementation criteria set by the Bank.

**BENEFITS:**

- a. Sewer service will be extended into six subbasins in southwest Cartagena which are home to low-income residents, taking in approximately 7,000 new subscribers.
- b. Sewer-service quality in the Bocagrande district will be improved by upgrading and expanding the current systems, which are beyond their service life and do not have the capacity to serve the population in need of this service.
- c. Water quality in Cartagena Bay will improve when sewage is conveyed to the existing underwater outfall, ending wastewater runoff into the bay.

**RISKS:**

The chief risk of the project is that the temporary solution adopted for sewage disposal into the bay might become a permanent one. According to technical studies, the underwater outfall into the bay will reach capacity in 2005. A feasibility study is now in process to come up with the best sewage treatment and disposal solution for the city overall. The project proposed herein would be the first phase of such a solution.

On the financial side, changes in water and sewer revenues could mean that the proposed financing arrangement for repayment of the loan might be insufficient. To counter any risk on this front, it will be a condition of the contract that the covenanted tariff increases through the year 2001 be brought in, and that the resulting tariffs be maintained in real terms.

**PROCUREMENT  
THRESHOLDS:**

International competitive bidding will be required for procurement contracts for the project worth over US\$2 million for construction and US\$350,000 for goods or services.

**EXCEPTIONS TO BANK  
POLICY:**

The guarantee afforded to the Cartagena District by the Republic of Colombia will not include a guarantee of the local counterpart contributions.

**THE BANK'S  
COUNTRY AND  
SECTOR STRATEGY:**

The Bank's strategy for Colombia centers on three activities: (i) strengthening management capacity in public institutions, to make for more efficient spending of public monies; (ii) supporting direct investment in the social sectors in greatest need, to alleviate poverty and raise the standard of living; and (iii) fostering private-sector participation in the economy to raise productivity. At the sectoral level, the two main aims are to strengthen the Bank's involvement in operations for mid-sized cities, and to support direct and indirect conservation initiatives.

The proposed project is in line with the aforementioned strategy: it will help raise the standard of living of city residents by extending sewer service - particularly in the southwestern section of Cartagena with its low-income population; it will help in the development of a mid-sized city; and it will significantly improve environmental conditions, when wastewater runoff into Cartagena Bay is halted.

**SPECIAL  
CONTRACTUAL  
CONDITIONS:**

**Conditions precedent to the first disbursement:**

- a. Signature of the project implementation agreement between the Cartagena District and ACUACAR (see paragraph 3.5).
- b. Signature of an irrevocable trust agreement between the Cartagena District and ACUACAR to arrange for the transfer of a percentage of ACUACAR rate revenues for repayment of the loan (see paragraph 3.10).

**Other conditions (in addition to the standard loan-contract covenants):**

- a. Within 18 months after the contract date, submittal to the Bank of a proposed solution for treatment and final disposal of sewage, including designs, action plan, and financing proposal (see paragraph 5.33).
- b. Before construction work begins on the Ceballos pumping station, evidence that persons affected by that project have been compensated and/or resettled (see paragraph 3.18).
- c. Presentation, during the life of the project, of semiannual performance reports on the parameters set out the project's environmental monitoring plan, and evidence that those parameters have been made known to the public (see paragraph 2.9).
- d. Presentation each year, within 120 days after each fiscal year-end for the life of the project, of a report on the financial condition of the Cartagena District, with details as to its adherence to the performance contract signed with the Nation (see paragraph 3.23).
- e. Demonstration, before March 31 of each year until the full tariff is in force, that the tariff increases agreed upon through the year 2001 have been brought in and adjusted for inflation (see paragraph 5.34).
- f. Presentation, within 120 days after each fiscal year-end throughout the life of the project, of financial statements of the project and of ACUACAR (see paragraph 3.22).

- g. Presentation, within 120 days after each fiscal year-end throughout the life of the loan, of the financial statements of the Independent Fund (see paragraph 3.22).

**Recognition of expenditures:** The Bank may allow retroactive financing of the project-preparation costs referred to in paragraph 3.15 of the attached proposal, incurred within the 12 months preceding approval of the loan and after April 22, 1997. Likewise, the Bank may recognize, against the local counterpart, expenses for construction work done for the project as indicated in paragraph 3.16, incurred within the 18 months preceding approval of the loan and after April 22, 1997.

## I. FRAME OF REFERENCE

### A. Macroeconomic setting

- 1.1 Colombia's economy showed signs of rebounding in the second quarter of 1997, following negative growth rates in the preceding three quarters. By year-end 1997 the economy had grown 3.2%, while inflation slipped two percentage points to approximate the 18% target. A 9.6% devaluation of the peso in real terms brought the export trade some measure of competitiveness after five lackluster years. In the more liquid 1997 markets, interest rates dropped 6.3 points, stoking the economic recovery.
- 1.2 The weak point of the Colombian economy is the fiscal area, as institutional reforms pursued in the early 1990s have been a heavy drain on the public purse. The central government deficit in 1997 rose to 4.2% of GDP (or 3.7%, if the nonfinancial public sector is considered). Nevertheless, the fact that the economy emerged largely unscathed from the Asian crisis in the latter half of 1997 showed it to be quite robust. Bond sales in 1997 brought in US\$1.2 billion, foreign investment hit US\$5.423 billion, and privatizations reached 3.64% of GDP, virtually evening out the country's consolidated fiscal balance.
- 1.3 The fiscal pressures are making themselves felt at the subnational level as well. Early-1990s reforms gave Colombia's departments and municipalities more authority, but overspending in some of these subnational jurisdictions has left them with unsustainable debt burdens. Early in 1997 the government passed a new subnational jurisdiction borrowing act, whereby departmental and municipal payment capacity will be monitored. A department or municipality that exceeds specified solvency ratios will have to bring in fiscal adjustment programs or see its access to the capital markets blocked.

### B. The water and sanitation sector in Colombia

#### 1. Status of water and sewer service

- 1.4 According to the 1995-1998 Water Plan produced by the National Planning Department and the Ministry of Development (CONPES document 2767 of March 22, 1995), 76% of Colombians had running water and 64% had access to sewer systems in 1993. This means that 8.7 million people in the country had no piped water, and 13.4 million no sewer hookups. Only 62% of urban dwellers - and a mere 10% of rural residents - are receiving water fit for human consumption. The document further states that annual capital investments in water supply and sewer facilities between 1991 and 1994 were on the order of 0.5% of GDP, and that an average of 50% of water produced was unaccounted for.

- 1.5 The objectives of the Water Plan are to (i) increase water and sewer system coverage, improve sanitary conditions and even out regional disparities; (ii) raise the quality of these utility services and leave systems less vulnerable; and (iii) consolidate the modernization process for water and sanitation agencies pursuant to Law 142/94.
- 1.6 An estimated 97% of sewage in the country is draining, untreated, into receiving bodies of water.

## 2. Legal and institutional framework

- 1.7 Under the Colombian Constitution, the State is responsible for public utilities delivery, and the responsibility and authority falling to each subnational jurisdiction must be clearly set out in the law.
- 1.8 Direct responsibility for service delivery rests with the municipalities. Providers may be private, public, or semipublic utilities and, exceptionally, the municipality itself. The central government has responsibility for planning, regulating, and overseeing public utilities. The aforesaid three activities fall to different agencies of the water and sanitation sector: planning, to the Ministry of Economic Development, through the Office of the Deputy Minister for Housing, Urban Development, and Water Supply; regulation, to the Water and Basic Sanitation Regulatory Commission (CRA); and oversight, to the Public Utilities Superintendency.

## 3. Tariff policy

- 1.9 Two effects of the new pricing rules developed by the CRA pursuant to Law 142/94 are, on the customer side, the consolidation of the current six-tier socioeconomic classification based on features of customer premises, and on the service provider side, a tariff regime based on the principle of regulated free pricing, whereby each provider sets its own rate schedule but must adhere to a set of common, sectorwide tariff rules.
- 1.10 The principles behind the common tariff rules are (i) economic efficiency, (ii) solidarity and redistribution, and (iii) financial adequacy. Economic efficiency means that rates will trend toward competitive market rates; the solidarity and redistribution element entails a system of cross-subsidies whereby higher-income customers and commercial and industrial users help those with fewer means to pay rates covering their basic needs; and financial adequacy means that rates must be high enough for providers to recoup their operating and maintenance costs, be able to replace current infrastructure, expand systems, and pay a return on shareholders' investment.

- 1.11 The rate-setting methodology used by Colombian water and sewer companies is governed by CRA resolutions, notably numbers 8, 9, and 13 of 1995 and numbers 15 and 16 of 1996. Its essential features are as follows: (i) there must be separate rate schedules for water supply and sewer service; (ii) for both utilities the tariff consists of a fixed user charge and a charge per cubic meter, which varies depending on the monthly consumption range (0 to 20 m<sup>3</sup>, 20 to 40 m<sup>3</sup>, over 40m<sup>3</sup>); (iii) the fixed portion of the rate must cover administrative costs of delivering the service; the variable portion must cover operating and maintenance, replacement, and capital costs; (iv) the subsidy and supplement system is such as to have high-income customers subsidize those of modest means; and (v) the possibility is left open of municipalities' subsidizing the cost of service to low-income customers by directly taking on part of the bill. The new tariffs are being phased in by all of Colombia's public utilities, under an arrangement that will see the rate schedules fully in place in 2001.
- 1.12 The new tariff rules have the following effects: (i) rates are trending upward, since the utility companies are required to cover the full cost of providing their service; and (ii) because of the new system's limits on the percentage subsidy allowable to low-income customers and the surcharge that can be levied on those with higher incomes (compared with the former method), rates for low-income customers will tend to rise during the adjustment period whereas those charged to higher-income users will come down.

C. Water supply and sanitation in Cartagena

1. Background and state of the systems

- 1.13 The city of Cartagena, which bears the name "Tourism and Cultural District", is the capital of the department of Bolívar. Situated on Colombia's Atlantic Coast, it has a population of about 730,000, and is one of the country's busiest ports and a tourism hub.
- 1.14 As of 1997, 72% of Cartagena's residents have potable water and 60% have sewer service. Not enough potable water is being produced to meet the demand, and there also are problems with service interruptions and low pressure, primarily in the poorer districts in high-lying parts of the city.
- 1.15 Apart from the sewer system's low coverage figures, much of the network is beyond its normal service life, and pipes are too small in diameter to adequately carry away sewage. Raw sewage thus runs off through the two drainage basins on which the city sits - 60% of it into Ciénaga de la Virgen, a closed body of water, and 40% into Cartagena Bay.



## 2. Water and sewerage master plans

- 1.16 Cartagena's water and sewer master plans date back to 1985. They were updated in 1992 and again in 1994.
- 1.17 The master plan for the city's water supply calls for roughly US\$60 million in capital outlays to increase production capacity and extend coverage, to take in a total of 95% of the population.
- 1.18 The sewer-system master plan, for its part, envisages works to expand coverage and rehabilitate the current system in the two drainage areas the city straddles, and to develop a definitive solution for the city's sewage treatment and disposal. The planned investments come to approximately US\$140 million - about US\$80 million for the sewer system per se, and US\$60 million for sewage treatment and disposal facilities. Designs are now complete for virtually all of the collector sewers, mains, and service lines. A consulting firm is at work on a study to propose the best alternative for treatment and final disposal of the city's sewage.

## 3. The operating company: ACUACAR

- 1.19 Until late 1994, Cartagena's water and sewer utility was Empresas Públicas Distritales (EPD). A steady deterioration in service quality and EPD's mounting financial problems prompted the Cartagena District, with central government and World Bank support, to begin looking to the private sector for this service. The process culminated in the transfer of these utility services to a new company, Aguas de Cartagena, S.A., E.S.P. (ACUACAR). Early in 1995, water and sewer services were transferred from EDP to ACUACAR, which has since July 1995 been delivering the services under the terms of a management contract signed with the Cartagena District.
- 1.20 The June 1995 contract between ACUACAR and the Cartagena District for integrated management of water and sewer services is an operating and maintenance accord under the terms of which ACUACAR undertakes to maintain, operate, and develop all the District-owned systems in its service territory. Ownership of the systems has not been transferred to the new utility: it has exclusive-use rights for the 25-year term of the contract.
- 1.21 Pursuant to the contract, the Cartagena District will plan and build all the works needed to expand the service; but, at the District's discretion, ACUACAR may be allowed to build works itself, paying for them with its own funds, in which case it will own the facilities for the life of the contract.
- 1.22 By virtue of a July 1996 agreement between ACUACAR and the Cartagena District, tariffs were adjusted and, in exchange, ACUACAR took on part of the capital investments provided for in the water and sewer master plan. The new tariff was put into effect

immediately, but on a phased-in basis, with full implementation scheduled for 2001. As part of the operation proposed herein, the responsibilities of ACUACAR and the Cartagena District for financing the master-plan water and sewer investments which can now be taken on have been quantified. ACUACAR is currently negotiating a loan and equity investment from the International Finance Corporation which would enable it to go forward with the water-system investments that fall to it.

- 1.23 Since the new operating company took over water and sewer services there has been a noticeable improvement in service delivery, from both an administrative and technical standpoint. On the administration and business side: (i) a fully-integrated commercial, financial, and warehouse and construction-project application is in place, networking the company's various offices throughout the city; (ii) a commercial infrastructure has been created, in the form of three customer service offices and arrangements whereby customers can pay their bills at seven financial institutions and a number of large retail establishments; this has markedly improved customer service and, thanks also to sound policies on overdue accounts, has pushed collection ratios from the 50%-60% range reported during the EPD years to 90% at this writing; and (iii) with the aim of tying billing to actual consumption, 89% of customer premises now are metered, compared to 48% at the outset.
- 1.24 On the technical side, ACUACAR has accomplished the following since it took over these utilities: (i) rehabilitation and optimization of the water treatment plant and construction of a modern analysis laboratory, to be able to ensure optimum water quality to customers; (ii) design and completion of emergency work on the water system, thereby optimizing system components and boosting production from 165,000 m<sup>3</sup>/day to 218,000 m<sup>3</sup>/day, and enabling ACUACAR to pipe more water to outlying areas; (iii) design and completion of emergency work on the sewer system, to build and clean collector sewers and dismantle connections with the storm drain system; and (iv) an emphasis on quick response to customer reports of leaks, breakage or other problems: in 1996, there were a total of 7,508 repairs or other work done on the water system and 4,550 on the sewer system. As for unmetered water, about 50% of water currently produced is unaccounted for; ACUACAR's plan is to bring this down to the 30%-35% range in five years.

D. The Bank's experience in the sector

- 1.25 The Bank has long experience in funding sanitation projects in Colombia, having approved a total of US\$722 million in lending to that sector to date. Prominent among the utility companies that have received IDB loans in the past or funding for projects now under way are Empresas Públicas de Medellín, Empresas Municipales de Cali, and Compañía de Acueducto Metropolitano de Bucaramanga. Thanks to these operations, the cities in question have boosted

production of treated water and have better-quality and more reliable service, systems reaching more residents, more metering, and less unaccounted-for water.

- 1.26 A number of Bank-funded projects currently under way in Colombia are specifically addressing sewerage problems:
- a. Cali water and sewerage project (US\$375 million): The object of this operation is to expand service coverage from 80% to 90% for water and from 76% to 83% for sewer services, and to bring the percentage of unaccounted-for water down from 40% to 30%. Construction on this project, which began in 1989, is 65% complete. Disbursements have been very slow, owing to internal problems in the utility company and its conversion to a municipal "industrial and commercial corporation".
  - b. Medellín River basic sanitation project (US\$232 million): The aim of this project is to capture 23% of sewage in metropolitan Medellín and treat it at a 2 m<sup>3</sup>/second secondary treatment plant. Part of the project is a program to reduce unaccounted-for water from 38% of total production to 30%, and to install 70,000 meters in customer premises. The project began in December 1994 and progress is satisfactory, with 52% of the physical work complete.
  - c. Upper Bogota River watershed sanitation project (US\$78.5 million): This project, which began in 1991, is improving water quality in the upper Bogota River watershed by building 23 sewage treatment plants, nine pretreatment systems for slaughterhouse waste, and 23 sanitary landfills. It is moving slowly, largely owing to delays in tendering processes. The works are about 72% complete: 11 of the planned 23 sewage treatment plants have been built, three are under construction, and four are being tendered.
- 1.27 A recently-approved project will supply US\$200 million for the second stage of a departmental development program for infrastructure finance. A guarantee operation approved through the Bank's private-sector window will support construction of the first of three sewage treatment plants designed to reduce pollution in the Bogota River middle watershed.
- 1.28 In 1996 the Bank approved a US\$12.5 million loan to the Republic of Colombia in support of the privatization and concessioning process in the energy, transportation, telecommunications, and water and sanitation sectors. In this latter sector, the object of the present proposal, consulting services have been engaged to devise arrangements for bringing the private sector into the utility company delivering these services in Montería, and similar advisory support is being engaged for water and sewer operations in Pasto.

- 1.29 In September 1995 the MIF Donors Committee approved nonreimbursable technical-cooperation funding to strengthen Colombia's Water and Basic Sanitation Regulatory Commission (CRA). The operation has four components: criteria and methodologies for regulation of the sector; guidelines for private-sector involvement in water and sewer system operation; training for CRA officers; and information systems development. The following is a status report on this project. **Component 1:** responsibilities of municipalities that contract out these utility services have been defined and standardized, and information has been gathered and refined to calculate the cost of the services by reference to their features. **Component 2:** A decree drafted to regulate some elements of private-sector participation is now being reviewed in the Ministry of Development and Ministry of Finance, and various studies have been done to evaluate operation of water and sewer services. **Component 3:** There has been a sharing of experiences with regulators in other countries and other regulated sectors. **Component 4:** Equipment has been purchased, a database has been designed, and information on tariffs for a wide sample of services has been processed and validated. According to the most recent monitoring report on this operation, it is expected that all activities will be completed in the third quarter of 1998.

E. The Bank's strategy for Colombia

- 1.30 The two-pronged focus of the Colombian government in recent years has been to develop the private sector and find ways to operate the public sector more efficiently, with a view to achieving sustained growth as a foundation for poverty-reduction in the medium term.
- 1.31 The Bank's strategy for Colombia is in line with the aforementioned approach. As described in the country paper (GN-1886), the strategy has three focuses: (i) strengthening management capacity of public institutions, to make for more efficient public spending; (ii) supporting direct investment in social sectors most in need, to alleviate poverty and improve living conditions; and (iii) fostering private-sector involvement in the economy, to boost productivity and thereby improve the standard of living of the Colombian people.
- 1.32 For the sanitation sector specifically, the country paper highlights Bank involvement in large cities like Cali and Medellín (and more recently in Bogotá, by way of the private-sector guarantee program), but notes the Bank's limited presence to date in intermediate-sized cities, which are a prospective focus for its efforts. In the related area of environmental protection, the paper refers to Bank support for direct and indirect environmental conservation initiatives.

F. The proposed operation

- 1.33 As was noted above, Cartagena's water-system master plan calls for outlays of US\$60 million to boost water production and extend the system. The current master plan for the sewer system, for its part, includes works to extend existing lines and build new sewers in the two drainage basins straddled by the city (Cartagena Bay and Ciénaga de la Virgen), a new sewage treatment system near Ciénaga de la Virgen, and an underwater outfall for ultimate sewage discharge into the Caribbean sea. The project described here encompasses all the investments planned for the Cartagena Bay catchment plus a temporary arrangement for sewage discharge via the existing outfall into the bay. These investments are separate from plans to resolve the city's sewage treatment and disposal situation, which are now under study.
- 1.34 Under the arrangement devised for implementation and financing of aggregate water and sewer system outlays, ACUACAR will furnish 60% of total funding and the Cartagena District 40%. The sewer-system investments required in the Cartagena Bay drainage area would be funded by way of the project proposed herein, which is the first stage of Bank-supported investments, and would be financed in the aforesaid proportion. The other sewerage investments and those required for final disposal of sewage (for which the Bank could provide a share of financing) will be effected under a responsibility-sharing scheme, with proportions to be worked out once a definitive sewage-disposal solution is at hand.
- 1.35 Under the financing arrangement proposed for this project, the loan would be paid back out of a trust fund (called the "Independent Fund") created for that specific purpose, into which would be paid a percentage of water and sewer rate revenues. This serves the principle of building service costs into the tariff and also takes into account the operating company's debt-repayment capacity. Moreover, earmarking a share of tariff revenues for an independent fund to repay the project debt affords assurances to the central government - the guarantor of last resort for the loan - that the municipality will be able to honor its payment obligations. This arrangement, which marks a novel approach among the many different forms that public/private partnerships can take, could be replicated in other Colombian municipalities where utility services are being efficiently run by a private or semipublic operator and responsibility for capital investments is shared between the company and the municipality.
- 1.36 The proposed project investments are in keeping with the Bank's strategy for Colombia, inasmuch as they will help raise the standard of living of low-income groups, improve the environment, and provide Bank support in a mid-sized city. On the environmental side, the project will put an end to sewage runoffs into the bay, by having wastewater conveyed through the existing underwater outfall.

## II. THE PROJECT

### A. Objective

- 2.1 The objective of the project is to improve sanitation conditions in areas of Cartagena that drain into Cartagena Bay. The project should be viewed as part of a broader investment plan to boost water production and extend the water system, extend the sewer system to other parts of the city, and devise a sewage treatment and final disposal solution.

### B. Goals

- 2.2 The goals of the project are threefold: (i) extend the sewer system to take in more households; (ii) upgrade and rehabilitate sewer systems in parts of the city where existing structures are past their normal service life; and (iii) assure proper disposal of wastewater currently draining into Cartagena Bay.

### C. Project description

- 2.3 Particulars of the project's three components are as follows.

1. Laying of sewer lines in southwest Cartagena (US\$10.5 million)

- 2.4 Investments under this component will expand sewer-system coverage in the southwest part of the city, in six subbasins draining into Cartagena Bay. These are the entire set of investments envisaged for this catchment area in the city's water and sewerage master plan. They entail laying approximately 21.2 km of service lines, 10 km of collector sewers, and a 0.6-km pressure main, and construction of a pumping station.

2. Reconditioning of Bocagrande sewer lines (US\$6.3 million)

- 2.5 Investments in this component will recondition secondary sewer lines in the Bocagrande district, the site of much of the city's hotel stock. The current sewer systems cannot handle the volume of sewage; when pumping stations overflow, wastewater runs onto Cartagena Bay. With funding under this component, 19 km of service lines and small collector sewers will be built.

3. Sewage disposal (US\$14.1 million)

- 2.6 This component will fund the construction of collector sewers and pumping stations to convey sewage away from all the project areas, and from other parts of the city whose wastewater is running into the bay, discharging this sewage via the bay's existing underwater outfall; rehabilitate that outfall, and have all effluent flowing through the outfall pretreated. The specific works planned are the

laying of about 8.3 km of collector sewers and 11.2 km of pressure mains; construction or reinforcement of four pumping stations; construction of a wastewater chlorination system; and rehabilitation of the underwater outfall.

D. Environmental management

- 2.7 The potential environmental and social impact of the proposed project was examined on the basis of two studies produced especially for it: (i) an environmental impact assessment (EIA) which ACUACAR commissioned from a specialized firm, and (ii) a simulation study of water quality in Cartagena Bay, which the Bank commissioned directly from the Colombian Navy's Center for Oceanographic and Hydrographic Research, which has been producing hydraulic and environmental studies on the bay for several years. The draft EIA was discussed at a seminar organized by ACUACAR in Cartagena on December 10, 1997, to which it invited environmental authorities, representatives of the academic community, and representatives of the communities that stand to benefit from the project. The final version of the study was released for public information on January 16, 1998.
- 2.8 To sum up the EIA findings: The project will have no significant adverse impact on the environment. Its social impact will be generally beneficial, inasmuch as sanitation conditions will improve in areas of the city to which sewer lines are extended, and surface wastewater runoff into the bay will cease. To mitigate any negative impacts, mostly associated with the planned construction work, the EIA proposes an environmental management plan containing mitigation and control measures, which will be part of the terms of reference for tendering out each construction job. The additional cost such measures may entail for contractors has been factored into the direct costs of the project.
- 2.9 To make certain that bacterial contamination in coastal areas targeted by the project is reduced to levels acceptable for uses involving direct contact with the water, even at times when conditions are unfavorable, the EIA recommends chlorine treatment of sewage before it is discharged via the outfall. The investment this will require has been built into the project's direct costs. A further element of the project is a water quality monitoring plan for the bay, to have up-to-date information on the effects of outfall discharges up to the year 2005. In the semiannual monitoring reports required as one of the general conditions of the loan contract, the borrower is to present, through ACUACAR, a report on adherence to the parameters set out in the aforementioned monitoring plan, and the results of the plan are to be made public.

E. Cost and financing of the project

- 2.10 The project has an estimated total cost of US\$40.5 million. The following table breaks out the cost by item of expenditure. The

criteria and methods used to produce this budget were reviewed by the project team, which found them to be acceptable.

TOTAL COST AND FINANCING (thousands of U.S. dollars)					
	EXPENDITURE ITEM	IDB-OC	LOCAL	TOTAL	%
1.	Engineering and administration	450	2,150	2,600	6.42
1.1	Studies and designs	450	0	450	1.11
1.2	Construction management and supervision	0	2,150	2,150	5.31
2.	Direct costs	18,943	11,999	30,942	76.40
2.1	Southwest Cartagena sewer lines	8,493	1,975	10,468	25.85
2.2	Bocagrande lines	0	6,320	6,320	15.60
2.3	Sewage disposal	10,450	3,704	14,154	34.95
3.	Associated costs	150	200	350	0.86
3.1	Land	0	100	100	0.25
3.2	Resettlement	0	100	100	0.25
3.3	Monitoring plan	150	0	150	0.37
4.	Unallocated	2,925	1,475	4,400	10.86
4.1	Contingencies	1,563	1,148	2,711	6.69
4.2	Escalation	1,362	327	1,689	4.17
5.	Financial charges	1,832	376	2,208	5.45
5.1	Interest	1,589	0	1,589	3.92
5.2	Credit fee	0	376	376	0.93
5.3	Inspection and supervision	243	0	243	0.60
TOTAL		24,300	16,200	40,500	100.00
Percentage share by funding source		60	40	100	

1. Engineering and administration (US\$2.6 million)

2.11 Outlays under this category break down as follows:

- a. Studies and designs (US\$0.45 million): the cost of the environmental impact assessment, analysis of the financial situation of the Cartagena District, and supplemental studies needed to design the various components.
- b. Construction management and supervision (US\$2.1 million): project management and construction supervision costs.

2. Direct costs (US\$30.9 million)

- 2.12 This includes construction costs of the planned works, namely:
- (i) sewer lines in southwest Cartagena, at US\$10.5 million;



(ii) Bocagrande sewer lines at US\$6.3 million; and (iii) sewage disposal arrangement at US\$14.1 million.

3. Associated costs (US\$0.35 million)

- 2.13 Included in this budget item are the cost of acquiring land for the Ceballos and Albornoz pumping stations, chlorine treatment of effluent at the El Bosque station, resettlement of 39 people to build the Ceballos pumping station, and the plan for environmental monitoring of the bay water.

4. Unallocated (US\$4.4 million)

- 2.14 Budgeted under this heading are US\$2.7 million as a construction contingency and US\$1.7 million for price escalation, calculated from projected domestic inflation of 18% annually and a 15% annual peso-U.S. dollar devaluation.

5. Financial charges (US\$2.2 million)

- 2.15 This category takes in interest, the credit fee, and the inspection and supervision charge.

F. Financing of the project

- 2.16 The Bank's loan, which will defray 60% of the total project cost, will be from the ordinary capital in U.S. dollars under the Single Currency Facility. Its terms and conditions would be as follows:

Annual interest rate:	Variable
Credit fee:	0.75%
Inspection and supervision charge:	1%
Disbursement period:	3 years
Grace period:	3 years
Amortization period:	20 years
Currency:	U.S. dollars, Single Currency Facility

- 2.17 The Cartagena District will furnish US\$16.2 million in local counterpart funding to cover the other 40% of the total cost. The feasibility of the counterpart contribution is examined in detail in chapter V of this proposal.

### III. PROJECT IMPLEMENTATION

#### A. General implementation plan

- 3.1 The project will be implemented by ACUACAR through its Design and Works Division (SGPO), which with the Operations Department and Development Department comprise the company's technical operations area. The SGPO, for the account of the Cartagena District, designs, commissions, and audits the city's water supply and sewerage master plans.
- 3.2 The SGPO will be in charge of all activities pertaining to construction management and project supervision, for both the Bank-funded components and those being financed out of the local counterpart.
- 3.3 The SGPO is headed by a deputy manager, whose responsibilities for purposes of this project will be as follows: (i) organize and guide activities of which he is in charge, and coordinate the work of the assigned staff to make certain that the project objectives are pursued and accomplished; (ii) coordinate and authorize contracting for goods and services following the Bank's rules and procedures; (iii) supervise the work of contractors; (iv) request disbursements and authorize expenditures in accordance with Bank rules and procedures; and (v) produce annual budgets and the reports required by the Bank, and ensure adherence to the project targets and conditions of the loan.
- 3.4 The proceeds of the Bank's loan will be disbursed through an account opened by the District of Cartagena exclusively for that purpose. ACUACAR's Finance Department will keep the project accounts, monitor costs imputable to the project, and manage the project cash flows. To that end, a specific cost center will be opened in ACUACAR's accounting system to record all activity relating to the project until its completion.
- 3.5 As a condition precedent to the first disbursement of the loan, ACUACAR is to submit for Bank clearance an agreement signed with the Cartagena District which sets out, *inter alia*, the rights and obligations of the parties, disbursement request procedures, availability of proceeds of the financing and the local counterpart, and ACUACAR's undertaking to implement the project.

#### B. Specific implementation arrangements

##### 1. Physical components of the project

- 3.6 Designs and studies for the project construction works are complete except for those needed for the chlorination system for sewage treatment, rehabilitation of the underwater outfall, and

modifications to the El Bosque pumping station, all of which will be available by July 1998. These works are scheduled to be tendered out in the second quarter of 1999.

- 3.7 The construction work will be done by contractors selected through competitive bidding. This will entail seven calls for tenders - two for goods, four for civil works, and one bid call already opened, for goods and construction of the Bocagrande service lines, collector sewers, and pumping stations. The bid conditions were reviewed and cleared by the Bank's office in Colombia.

2. Financing plan for the project

- 3.8 Under the proposed financing arrangement, the borrower will be the Cartagena District, but the Bank's loan will be repaid from ACUACAR rate revenues. The four parties to the arrangement will be: (i) the Cartagena District, as borrower; (ii) ACUACAR, which will hand over part of its rate revenues to service the debt; (iii) a trust-type fund (the "Independent Fund") into which the aforesaid portion of ACUACAR revenues will be deposited; and (iv) a trust company, to be legal representative of the Independent Fund.

- 3.9 The arrangement would work as follows.

- a. Every month, ACUACAR would pay 4.8% of its water and sewer rate revenues into the Independent Fund, including in the calculation amounts corresponding to late payments and penalty payments, if any, on such arrears. This percentage was calculated such that the present value of transfers to the Fund over the life of the loan will equal the value of the loan. The first month on which ACUACAR will be required to pay this percentage into the Independent Fund is January 2001.
- b. On each loan instalment due date the trust company (legal representative of the Independent Fund) would arrange, on behalf of the Cartagena District, for payment of the installment, using monies in the Fund.
- c. If there were insufficient money in the Independent Fund to make the payment, the Cartagena District would have to deposit the shortfall in the Independent Fund, whereupon the Fund would owe the District that sum.
- d. Any monies remaining in the Independent Fund after a loan installment had been paid would be used to repay to the Cartagena District any amount owed to the District on account of advances it had made to the Fund, together with the associated financial charges.

- 3.10 The 4.8% has been calculated so as to have monies deposited into the Independent Fund in each year of the loan exceed the debt service for that year. The assumptions used have been conservative

ones, both in terms of revenue increases and exchange-rate and interest-rate changes; thus, ACUACAR revenue transfers to the Independent Fund could end up exceeding the amount required for debt service, in which event prepayments could be made toward the loan. If ACUACAR deposits to the Fund are lower than the required debt service, the Cartagena District would make up the shortfall. Annex III describes the workings of the Independent Fund in greater detail. As a **condition precedent to the first disbursement** of the Bank's loan, an irrevocable trust agreement must have been executed, on the terms described herein, in which ACUACAR undertakes to cede the above-mentioned share of its revenues to the Independent Fund.

- 3.11 A noteworthy feature of the planned financing arrangement is that investment projects already built into the tariff can go ahead, without passing on to the operating company the risk of a heavy debt burden.

C. Supervision

- 3.12 The project will be supervised by the Bank's Country Office in Colombia, with support from the project team. Supervisory work relating to the Independent Fund will be done by the project team. The expectation is that in the course of the project there will be a joint review of all of its elements by the Bank, the borrower, and the executing agency, including progress on plans for the future phase of investments for sewage treatment and ultimate disposal.

D. Implementation period and investment timetable

- 3.13 The estimated date for completion of the project and disbursement of the loan proceeds is three years from the contract signature date. This term was arrived at after thorough analysis of each of the project components and the executing agency's capacity.
- 3.14 The following table shows the planned disbursement timetable and sources of funding.

PROJECT DISBURSEMENT TIMETABLE (in thousands of U.S. dollars)				
YEAR	IDB	COUNTERPART	TOTAL	%
1	6,075	4,050	10,125	25
2	9,720	6,480	16,200	40
3	8,505	5,670	14,175	35
TOTAL	24,300	16,200	40,500	100
%	60	40	100	

E. Tendering requirements and timetable

- 3.15 The Bank's procedures will be followed for procurement of goods and services. It will be understood, for these purposes, that a public-sector agency is a corporation or other entity in which the State holds a 50% or higher stake. International competitive bidding will be mandatory for contracts exceeding US\$350,000 for goods or services and exceeding US\$2 million for construction work. Since none of the calls for tender will be particularly expensive and the planned construction is generally uncomplicated, there will be no prequalification requirement for construction work for the project. Annex II to this proposal contains the procurement plan.

F. Recognition of prior expenditures and retroactive financing

1. Retroactive financing

- 3.16 The sum of US\$328,635 will be recognized against the proceeds of the financing to reimburse expenditures to prepare the project: the environmental impact assessment (US\$128,000), a financial analysis of the Cartagena District (US\$7,135), and designs for project works (US\$193,500), which were incurred after April 22, 1997, and with Bank approval.

2. Recognition of expenditures against the local counterpart

- 3.17 Up to the sum of US\$1,917,500 will be recognized against the local counterpart for construction work done in the southwest Cartagena subbasins targeted by the project. This work was contracted for in accordance with Bank rules and procedures, and was likewise done after April 22, 1997.

G. Land acquisition and resettlement

- 3.18 Land will need to be acquired to build the Ceballos and Alborno pumping stations. The construction will affect 39 Ceballos residents, who will need to be resettled. The land in question is

owned by one person, who has her principal residence there, living with her three daughters and their families. On the same property are eleven dwellings, nine of which are rented out and are home to 25 people. The tenants have oral contracts ranging from one-month-renewable to indefinite. After examining the various options, it was decided that compensation would be offered for the loss of land, infrastructure, and earnings. The project will indemnify tenants whose lease would have continued after March 1, 1998, in an amount equal to six months of their rent. As a precondition for authorizing the start of construction on the Ceballos pumping station, the executing agency is to demonstrate that families displaced by the project have been adequately compensated.

H. Infrastructure operation and maintenance

- 3.19 The infrastructure set in place by the project will be operated and maintained by ACUACAR for the life of the concession contract. When the contract expires, ACUACAR is to turn the infrastructure over, in perfect operating condition, to the Cartagena District. ACUACAR will operate and maintain these project-funded works through its engineering department. It has the organization, staff, and resources needed for that purpose.
- 3.20 ACUACAR will be required to provide the Bank with an operating and maintenance plan for the works within the first quarter of every calendar year for three years, counting from the completion of the project. The plan must include a report on the previous year's operations and the state of repair of the systems.
- 3.21 Pursuant to current utility tariff rules, the cost of services must include the current cost of existing infrastructure, so that utilities will generate enough funds to replace infrastructure when it reaches the end of its service life. Consequently, the next tariff adjustment, in 2001, will include depreciation on assets built under the project.

I. External audits

- 3.22 The borrower, through ACUACAR, is to provide the Bank with the consolidated financial statements of the project and of ACUACAR each year, within 120 calendar days after each fiscal year-end, for the life of the project. All statements must have been audited by a firm of independent accountants acceptable to the Bank. The same requirement applies to consolidated financial statements of the Independent Fund during the life of the loan.
- 3.23 Throughout the project implementation period, the borrower, through ACUACAR, will furnish an analysis of its financial condition every year, produced by an independent consulting firm, to be submitted within 120 days after the borrower's fiscal year-end. The analysis is to include details on adherence to the performance contract signed with the Nation.

J. Ex post evaluation

- 3.24 An ex post evaluation will be performed of the Cartagena Bay sanitation component if, by the time the project ends, a decision has not yet been reached on a citywide solution for sewage treatment and disposal. If such an evaluation is done its cost will be defrayed with Bank funds, and it will use the findings of the monitoring plan on water quality in the bay and surveys conducted for the ex ante evaluation. The primary object of the evaluation will be to quantify the benefits ensuing from improvements in the health of the bay and the increased recreational use being made of it as a result of the investments planned in this component of the project.

#### IV. BORROWER, GUARANTOR, AND EXECUTING AGENCY

- 4.1 The borrower will be the Cartagena District, with the Republic of Colombia as guarantor. The Nation's guarantee covers only repayment of the loan, including interest and fees; it does not cover the local counterpart or any obligation that is not within the legal purview of the national government. The executing agency for the project will be ACUACAR, the city's water and sewer utility, which also designs and audits the water and sewerage master plans for the District's account.
- A. The borrower: Cartagena District
- 4.2 The Cartagena Tourism and Cultural District is a decentralized authority established under public law. Its chief executive is the mayor. Legislative and oversight functions are vested in the district council, district comptroller's office, and district attorney's office.
- 4.3 The table further on in this section gives a picture of the Cartagena District's budget and finances over the past three years. Huge capital investments over that interval left the District with mounting debt and a considerable deficit in 1996.
- 4.4 The borrowing ceiling for Colombia's subnational jurisdictions is regulated by law. Until 1996, debt limits were governed by departmental and municipal codes, which barred a department or municipality from domestic borrowing in any fiscal year if, in that year, its aggregate public debt service - principal plus interest - would be more than 30% of its ordinary revenues (including the new borrowing).
- 4.5 New legislation passed in December 1996 - the Departmental and Municipal Borrowing Act - is intended to tie borrowing authority to ability to pay, measured by way of interest on the debt as a percentage of operating savings. Operating savings are defined as current revenues less current expenditures, not counting interest. Under this new law, a subnational jurisdiction reporting a ratio under 40% has unrestricted borrowing authority; the same holds for one with a ratio of 40% to 60%, provided the debt carryover from the previous fiscal year does not increase by more than Banco de la República inflation forecasts for the fiscal year. If the increase exceeds the projected inflation rate, the subnational jurisdiction must seek authorization from the department (which will be granted if a performance contract is adopted), or from the Ministry of Finance (MHyCP) for municipalities that are capitals and for districts or departments. If the ratio exceeds 60%, or the ratio of outstanding debt to current revenues exceeds 80%, the subnational jurisdiction may take on new borrowings only with MHyCP authorization.



- 4.6 At year-end 1996, the new debt the Cartagena District would have had to take on to pay for water-supply infrastructure, make up the deficit, and refinance its existing debt, would have taken it over the above-mentioned legal borrowing ceiling. Accordingly, in December 1996, the District had to sign a performance contract with the MHyCP, effective through December 27, 1998. Under the terms of this pact the District must take a series of measures to boost current saving, including: (i) increasing the proceeds of taxes it controls; (ii) cutting current expenditure; (iii) selling assets to bring down its debt and establish a fund to meet its pension liabilities; and (iv) scale its future investment plans to its financial possibilities.

<b>Cartagena District</b> <b>Cash operations</b> (millions of constant 1997 U.S. dollars, calculated from constant 1997 Colombian pesos)				
	1994	1995	1996	1997e
Tax revenues	8.5	10.9	20.4	40.2
Other revenues	3.5	8.9	5.4	4.7
<b>TOTAL CURRENT REVENUES</b>	<b>12.0</b>	<b>19.8</b>	<b>25.8</b>	<b>44.9</b>
District Administration	-4.9	-8.6	-19.2	-26.4
Legislative and Oversight Branch	-1.2	-2.4	-5.6	-7.6
<b>TOTAL CURRENT EXPENDITURE</b>	<b>-6.1</b>	<b>-11.0</b>	<b>-24.8</b>	<b>-34.0</b>
<b>Current surplus/deficit</b>	<b>5.9</b>	<b>8.8</b>	<b>1.0</b>	<b>10.8</b>
<b>DEBT SERVICE</b>	<b>-5.1</b>	<b>-9.1</b>	<b>-18.4</b>	<b>-22.6</b>
<b>Surplus (deficit) before capital items</b>	<b>0.7</b>	<b>-0.3</b>	<b>-17.4</b>	<b>-11.7</b>
National government transfers	2.4	8.2	16.0	46.5
Current transfers	4.2	7.5	13.9	17.9
Royalties	0.0	0.3	2.8	17.8
Other capital revenues	1.4	2.8	10.3	63.7
<b>TOTAL CAPITAL REVENUES</b>	<b>8.0</b>	<b>18.8</b>	<b>43.0</b>	<b>145.9</b>
<b>CAPITAL EXPENDITURE</b>	<b>-18.0</b>	<b>-23.9</b>	<b>-60.8</b>	<b>-126.1</b>
<b>Total surplus (deficit)</b>	<b>-9.2</b>	<b>-5.4</b>	<b>-35.2</b>	<b>8.1</b>
Payments for prior fiscal years	0.0	0.0	0.0	-54.3
Borrowings	11.0	7.5	11.5	29.2
<b>Final surplus (deficit)</b>	<b>1.8</b>	<b>2.0</b>	<b>-23.6</b>	<b>-17.1</b>

- 4.7 At the end of the third quarter of 1997 the MHyCP revised the performance contract targets, authorizing the Cartagena District to borrow from Financiera de Desarrollo Territorial (FINDETER), inasmuch as an analysis showed that most of the year-1 program targets had been achieved.

- 4.8 A study done using preliminary 1997 data confirms the foregoing analysis. At year-end 1997 the Cartagena District showed a surplus, after capital items, and if its bottom line is a deficit it is only because of debt carryovers from previous years. Two reasons for this brighter picture are a substantial increase in revenues and the sale of US\$45 million in Telecartagena stock. But even with this improvement and expected further gains in 1998, the District still is heavily indebted, and continued efforts will be needed to cut spending and minimize the impact of capital investment finance.

B. The executing agency: ACUACAR

1. Legal status and institutional features

- 4.9 ACUACAR is a semipublic district utility organized as a corporation. It was established by public deed No. 5427 of December 30, 1994, pursuant to Resolution 5 of March 1, 1994, of the Cartagena District Council, which had directed that the public utility then providing water and sewer service be wound up and the private sector brought in as service provider through a new corporation. Colombian law expressly provides that all utility companies in the country operate exclusively under private law.
- 4.10 ACUACAR has a capital stock of 4 billion Colombian pesos (about US\$3.5 million), with ownership shared among the Cartagena District with a 50% stake, an international operator (Sociedad General de Aguas de Barcelona S.A.) with 46%, and local shareholders with 4%.
- 4.11 The company's governing bodies are the general stockholders meeting, chaired by the mayor of the Cartagena District, and a five-member board of directors, likewise headed by the mayor. ACUACAR's general manager, appointed by the board of directors at the proposal of the operating partner, is the company's legal representative and is in charge of administration and day-to-day business operations.
- 4.12 ACUACAR's by-laws spell out the obligations of its different shareholders. The operating partner, for instance, has agreed to pass on its expertise and industrial management and organizational know-how, so ACUACAR can assimilate a management model that the operating partner stands behind.

2. Organization

- 4.13 ACUACAR currently has a staff of 490, making for a ratio of just over five employees per 1,000 customer connections. This falls within the range denoting efficient operation in water and sewer utilities.
- 4.14 ACUACAR's organization structure is very flat and functional. Essentially, the company is divided into five departments each

headed by a manager – for engineering, business operations, systems, finance, and human resources – all of which report directly to the general manager. These units are assisted by a number of support departments, likewise reporting to the general manager, for legal counsel, quality control, communications and press, and community relations.

- 4.15 The Design and Works Division in the engineering area is responsible for construction design and tendering and for auditing water and sewer system master plans, for construction work done by ACUACAR directly and by the Cartagena District. Responsibility for District works derives from the September 15, 1995, contract assignment by ACUACAR's predecessor that had performed these functions for the District's account.
- 4.16 Among the 32 employees currently assigned to the Design and Works Division are 18 engineers, two surveyors, and two draftsmen. The division is divided into three areas, dealing with project inspection and audits, planning, and studies.

### 3. Water and sewer tariffs

- 4.17 In October 1997 ACUACAR's customer base totalled 93,705 subscribers for water, with some 36 million m<sup>3</sup> of water billed annually, and 78,195 subscribers for sewer service. The following table shows recent increases in water and sewer service consumers and the percentage of metered customer premises. As was noted earlier, the effective collection ratio (monthly revenues as a percentage of monthly billings) now stands at about 90%, while about 50% of water produced is unaccounted for.

	1995	1996	1997
Water customers	86,560	90,051	93,705
Sewer-service customers	70,170	74,410	78,195
Percentage of customer premises that are metered	61.0	77.3	89.2

- 4.18 The rates currently being charged by ACUACAR were approved by its board of directors in June 1996 and became effective in September of that year. Until then, the company had been applying the rate schedules inherited from its predecessor.
- 4.19 Pursuant to the rules now in force, the new tariff is to be phased in until it is fully in place in 2001. Rates were raised first in September 1996, as indicated in the previous paragraph, and then again in September 1997. The remaining increases are scheduled for September 1998, 1999, 2000, and 2001. The following table shows mean real tariff increases for the coming years in accordance with

the tariff adjustment approved by ACUACAR's board of directors and projected water and sewerage billings by customer class, taking as base rates for the comparison the 1996 mean tariff of approximately US\$0.46/m<sup>3</sup> for water and US\$0.24 m<sup>3</sup> for sewer service. With these increases, the mean water rate in the year 2001 will be US\$0.59/m<sup>3</sup>, and for sewer service US\$0.36/m<sup>3</sup>.

Annual mean tariff increases over previous year, pursuant to approved tariff phase-in		
YEAR	WATER	SEWERAGE
1997	10%	17%
1998	6%	10%
1999	4%	7%
2000	3%	4%
2001	3%	4%

- 4.20 ACUACAR also supplies some 16.5 million m<sup>3</sup> of raw water at a block rate to the city's industrial zone. The 1996 rate for this service, freely set by ACUACAR, was US\$0.20/m<sup>3</sup>. By decision of the board of directors this rate too is to be adjusted upward until it reaches US\$0.31/m<sup>3</sup> at the end of 1998.

#### 4. Financial analysis

- 4.21 According to ACUACAR's operating statement for its first fiscal period - which covers really six months, from July to December 1995 - the company posted net earnings of US\$0.9 million. This stands in sharp contrast to the US\$5-million-plus loss recorded by its predecessor in 1994. In 1996 ACUACAR reported a profit of US\$2.1 million, and distributed a dividend of US\$0.9 million.
- 4.22 The asset side of the corporation's balance sheet shows accounts receivable including customer receivables, with a collection period of 127 days at December 1996 and fixed assets on the rise, the result of direct ACUACAR capital investments in water-supply infrastructure. The rest of the system operating assets and capital investments by the Cartagena District do not appear on ACUACAR's balance sheet. The liability side points up the company's rising debt (again, associated with the ongoing investment plan) that may surpass US\$22 million at year-end 1997, making for an equity-to-debt ratio of 30%/70%.

## V. VIABILITY OF THE PROJECT AND RISKS

### A. Technical viability

- 5.1 The new service lines and collectors to be built under this project in areas of Cartagena currently without sewer service will extend the system to take in households in those parts of the city. Calculations to decide the scale of the new works took into account not only current population figures but also population trends through to the year 2025, at which point the systems described in this proposal will have reached the end of their service life.
- 5.2 In Bocagrande, sewer lines are already beyond their normal useful life, and they are also serving a far larger population than they were designed for. This combination of obsolete infrastructure and undercapacity is the cause of sewage runoffs into the bay, which the proposed project will remedy.
- 5.3 Following a recent ACUACAR study on the condition and capacity of the underwater outfall into the bay, a series of rehabilitation works were identified, which are included in the cost of the proposed project. The outfall's capacity would be sufficient until about the year 2005; given this, it will be particularly important to dovetail this project with the final solution adopted for treatment and disposal of Cartagena's sewage, now being developed.
- 5.4 According to the analysis done, from a technical standpoint the project would in no way compromise or condition the approach ultimately devised for a comprehensive sewage treatment and disposal plan. In fact, it would be by way of the first phase in the construction of such a system.

### B. Institutional and financial viability

#### 1. Institutional viability

- 5.5 Since ACUACAR took over operation of Cartagena's water and sewer systems in the second half of 1995, the company's performance has been quite satisfactory as far as service quality and efficient delivery are concerned. ACUACAR spent the equivalent of US\$10 million in 1996 and close to US\$24 million in 1997 on water and sewer infrastructure, either directly or for the account of the Cartagena District. The capital investment envisaged in each of the three years of the project would be lower than the 1997 figures; accordingly, there should be no problem as far as implementation capacity is concerned. According to a review done of ACUACAR's project supervision experience, the company is technically equipped to supervise construction for this project, so it is proposed that it also perform this activity.

## 2. Financial viability

### a. Cartagena District

- 5.6 The analysis of Cartagena District finances focused on its recent financial situation generally, which determines whether it is legally empowered or not to take on new debt.
- 5.7 As was mentioned in chapter IV, there are legal restrictions on borrowings by Colombia's subnational jurisdictions, by reference to two ratios: interest to operating savings, and debt stock to current revenues. For there to be no restrictions on borrowings, the first of those ratios must be under 40% and the second under 80%. The following table shows the ratios for 1997 and for 1998 without the project, and two 1998 disbursement scenarios.

	1997	1998 without project	1998 (25% dis- bursement)	1998 (100% dis- bursement)
Interest/Operating savings	42.4%	46.3%	46.5%	48.6%
Debt stock/Current revenues	78.5%	36.1%	41.0%	54.4%

- 5.8 In the wake of strong growth in tax revenues in 1997, the District's debt stock/current revenues ratio in 1998 will improve considerably. This indicator is the more sensitive to the effects of the project on Cartagena District indebtedness, but even in the extreme scenario that the entire loan were disbursed in 1998 – an assumption used to measure sensitivity – the ratio would still be below the legal threshold. Consequently, the Cartagena District would be legally empowered to borrow the amount being proposed as the Bank's loan.
- 5.9 The following table depicts the District's medium-term financial and budget situation. It shows a small overall surplus from 1998 through 2002, even with tax increases as from 1997 which would be maintained through the year 2000. The performance contract signed with the Ministry of Finance sets out a series of fiscal measures intended to improve the District's finances. They center on rationalizing expenditures through staff downsizing, extending the life of the property tax, and selling off non-revenue-producing assets.

<b>Cartagena District</b> <b>Cash operations</b> (millions of constant 1997 U.S. dollars, calculated from constant 1997 Colombian pesos)					
	1998	1999	2000	2001	2002
Tax revenues	43.3	44.4	45.6	46.9	48.2
Other revenues	14.3	14.7	15.1	15.5	15.9
<b>TOTAL CURRENT REVENUES</b>	<b>57.6</b>	<b>59.1</b>	<b>60.7</b>	<b>62.4</b>	<b>64.1</b>
District Administration	-26.5	-27.0	-27.4	-27.9	-28.5
Legislative and Oversight Branch	-8.3	-8.4	-8.6	-8.9	-9.0
<b>TOTAL CURRENT EXPENDITURE</b>	<b>-34.8</b>	<b>-35.4</b>	<b>-36.0</b>	<b>-36.8</b>	<b>-37.5</b>
<b>Current surplus/deficit</b>	<b>22.8</b>	<b>23.7</b>	<b>24.7</b>	<b>25.6</b>	<b>26.6</b>
DEBT SERVICE	-28.1	-23.3	-17.0	-11.3	8.0
<b>Surplus (deficit) before capital items</b>	<b>-5.3</b>	<b>0.5</b>	<b>7.7</b>	<b>14.3</b>	<b>18.6</b>
National government transfers	50.0	49.2	51.0	52.8	54.8
Current transfers	23.4	24.5	25.6	26.7	28.0
Royalties	8.8	9.1	9.4	9.7	10.1
Other capital revenues	27.5	7.5	7.7	8.0	8.3
<b>TOTAL CAPITAL REVENUES</b>	<b>109.7</b>	<b>90.2</b>	<b>93.7</b>	<b>97.3</b>	<b>101.1</b>
<b>CAPITAL EXPENDITURE</b>	<b>-107.1</b>	<b>-90.2</b>	<b>-93.7</b>	<b>-97.3</b>	<b>-101.1</b>
<b>Total surplus (deficit)</b>	<b>-2.7</b>	<b>0.5</b>	<b>7.7</b>	<b>14.3</b>	<b>18.6</b>
Payments for prior fiscal years	-15.0	0.0	0.0	0.0	0.0
Borrowings	17.9	0.0	0.0	0.0	0.0
<b>Final surplus (deficit)</b>	<b>0.2</b>	<b>0.5</b>	<b>7.7</b>	<b>14.3</b>	<b>18.6</b>

5.10 The projections in the foregoing table are the "without project" scenario. The project proposed herein would have minimal impact on District finances (though it would have implications for legal ratio requirements, as explained above), for the following reasons:

- a. On the debt-service side, the bulk of payments would be made out of rate revenues ceded by ACUACAR, by way of the funding arrangement described in chapter III of this proposal.
- b. As for local counterpart availability, on December 10, 1997, the Cartagena District called tenders for approximately US\$11 million in construction work for the Bocagrande sewer lines and some of the collector sewers for the sewage-disposal component of the project. One feature of the tender calls is that the successful bidder must finance the works and recover its investment costs by way of a betterment levy, which will be created for that purpose and will fall directly on customers who benefit from the new systems. Thus, a portion of the local counterpart will come from works contributed through assignment

of the betterment levy. The bid terms and conditions were reviewed and cleared by the Bank's Country Office in Colombia.

- 5.11 According to the January 21, 1998, CONPES document produced by the National Planning Department for the project described herein, the District is to continue to push up its revenues through the property tax and business tax, the goal being to raise the percentage of property-tax payers from the current 30% to 80% and for business-tax payers from 10% to 80%; adjust its debt profile, concentrating financing on earmarked revenues and avoiding funding out of ordinary revenues; continue to downsize its staff (which could be cut by a further 300); and continue to sell off non-revenue-producing assets. The aforesaid measures will be included in the new performance contract.

b. ACUACAR

- 5.12 Projections of ACUACAR's financial statements assumed an increase in the company's customer base for water and sewer service once the infrastructure built with the above-described investments was in place, with no change in current consumption levels. Water and sewer revenues were projected from the tariff increases described in chapter IV, and costs on the basis of the audited 1996 operating statement. Also assumed was a gradual reduction in unaccounted-for water, from the current 50% of total production to 35% in five years, as per ACUACAR forecasts.
- 5.13 The operating-statement projections show that ACUACAR would take in sufficient rate revenues to cover, in each year, the costs of running the system, including operating and maintenance costs, fixed-asset depreciation, and finance charges, and pay a reasonable return on shareholders' equity.
- 5.14 The project would mean two types of incremental costs for ACUACAR: the payment of 4.8% of its revenues into the Independent Fund beginning in 2001, which is akin to servicing a debt, and the incorporation of new sewer-service customers, which will entail operating costs, including wastewater chlorination, this being equivalent in practice to the additional revenue generated by those same subscribers.
- 5.15 The cash-flow projections show that ACUACAR would be able to make the above-mentioned payments into the Independent Fund and also repay its existing debt and debt ensuing from future financial commitments associated with the water-system capital works plan.
- 5.16 On the liabilities and equity side, in the first years ACUACAR's equity/debt structure would remain at around 25/75. For this reason, the company is considering a capital increase in the short term, which would be essential if it had to take on, in the years ahead, a direct investment plan larger than the one currently envisaged.



C. Economic viability

- 5.17 The project was divided into three components for an economic analysis: (i) expansion of sewer lines in southwest Cartagena-Cartagena Bay drainage area; (ii) rehabilitation of sewers in Bocagrande; and (iii) clean-up of the bay.
- 5.18 Particulars of the cost-benefit analysis of the different components are given below, followed by the economic appraisal findings.

1. Costs and benefits

a. Expansion of sewer lines in southwest Cartagena-Cartagena Bay drainage area

- 5.19 Works planned in this component will extend sewer service in southwest Cartagena, which is home to a largely low-income population. Because it is difficult to capture benefits of this type of investment using direct methods (such as estimating the value of improvements in health conditions), the contingent valuation approach is typically used.
- 5.20 To elicit information on residents' willingness to pay for sewers, a survey was done of 501 heads of household in the project area that are hooked up to ACUACAR's water system. Before conducting the survey proper, the usual recommendations were followed as to focus groups, in-depth interviews, and pilot surveys. Over 85% of respondents ranked sewer service as the most pressing need in their neighborhoods; 95% ascribed it some level of priority. Some 67.5% of those questioned are using septic tanks or latrines, 15.6% have pipes dumping sewage directly into ditches, and 13.6% have no wastewater conveyance system at all. The survey questions about willingness to pay followed the referendum and follow-up question procedure, for monthly payments of 5,000, 10,000, 15,000, 20,000, and 25,000 Colombian pesos, distributed randomly among the households surveyed.
- 5.21 The econometric analysis showed that, on average, the surveyed households were prepared to pay 15,560 and 15,750 Colombian pesos for sewer-service models based on the first survey question and the first and follow-up questions, respectively (marking as zero any estimates yielding negative numbers, and limiting maxima to 10% of reported household income). The coefficient of variation of willingness-to-pay (WTP) estimates would be 2% in both cases, and WTP would represent, on average, 6.7% and 7.1% of household income, respectively. The WTP used in the economic appraisal was the average estimated from the two survey questions about price, fitting the equation to all the sample points in each subbasin.
- 5.22 Project costs were estimated from budgets produced by ACUACAR engineers, using the following conversion factors: (i) 0.906 as

the standard conversion factor; (ii) 0.862 for Colombian-sourced materials, to take account of a 16% value-added tax; (iii) for imported materials, 0.718 to 0.82 for pipe and heavy machinery, calculated from specific tariff information; (iv) 0.742 for skilled labor, factoring in social security and other levies for education and welfare funds; and (v) 0.671 for unskilled labor, taking account of parafiscal levies and the country's estimated 9.5% unemployment rate, and assuming that the origin of the project labor force would match the current ratio of employed in other activities/unemployed.

- 5.23 Also looked at, alongside capital cost estimates in the project budget, were costs of household sewer connections, operation and maintenance – routine sewer cleaning and unclogging, and some pipe replacement, the cost of replacing equipment that has a service life shorter than the 20-year analysis horizon, and estimates of the equipment's salvage value at the end of that interval.

b. Bocagrande sewer line expansion

- 5.24 Costs examined in this component are those required to rehabilitate and upgrade sewer lines in the Bocagrande district of Cartagena, which are beyond the end of their useful life and need more capacity now than when originally designed. The project would take sewer service to an area of the city whose population density has soared in the past 20 years, leaving sewer systems unable to keep up with current, much less projected, demand. Because this component entails rehabilitation work in a high-density area, a simple verification of its financial viability was done, rather than an economic analysis.

c. Cartagena Bay clean-up

- 5.25 The contingent valuation approach was used to estimate the benefits this component would yield. Since the entire population of the city stands to benefit from improved water quality in the bay, the survey took in 500 families from across the city, selected at random from among ACUACAR customers. The chief benefit of the planned works – more collector sewers in Bocagrande, Pie de Popa, and Manga, new lines in southwest Cartagena, and pretreatment of effluent – is that they will stop sewage runoff into the bay at various points, which is a problem now even in some parts of the city that do have sewers. Because total coliform and fecal counts at this writing grossly exceed current standards, recreational use of the inner bay is discouraged. The project works would lower coliform counts to a level at which the bay would be safe for recreational use involving direct contact with the water. There would continue to be pollution because of dissolved oxygen demand and from other sources, notably the Mamonal industrial park, and the impact of discharges from the seawall channel.

- 5.26 Cartagena's residents are fully aware of the pollution problem in the bay. A third of survey respondents ranked it among their top concerns, and 14% said it was the problem the city most urgently needed to resolve. People use the bay for many purposes: 38% of those surveyed swim in it, 13% sail, 38% go for walks along the shore, and less than 5% fish there or hold picnics or bonfires alongside it. These figures are far below those recorded in the past, when 70% of city residents swam in the bay, 38% sailed, 50% went for walks, and 31% fished in its waters.
- 5.27 Capital costs as well as operating and maintenance costs were corrected using conversion factors similar to those used for the other two project components.

## 2. Economic appraisal findings

- 5.28 The table below presents the findings of the economic analysis at efficiency prices. Two of the four sewerage subcomponents in southwest Cartagena yield internal rates of return (IRRs) slightly below 12%. However, it is recommended that these two subcomponents be considered in the aggregate, given the difficulty of marginally adjusting the design specifications to give a 12% return, and the fact that the IRR for the subbasins in this part of the city as a whole is 15.4%.
- 5.29 The sensitivity of rate of return to a 20% increase in capital costs was examined. The exercise showed, in this scenario, an IRR in excess of 12% for the bay clean-up project and the set of sewer projects in southwest Cartagena.

ECONOMIC APPRAISAL FINDINGS						
Subproject	Capital cost (US\$000)	Operating costs (US\$000)	WTP (US\$/fam./ month)	Customer connections 1999 (families)	Customer connections 2018 (families)	IRR %
Albornoz-Ceballos	2,868	86.1	15.64	2,075	2,387	10.5
Bosque Sur-Ceballos	1,321	39.6	16.5	1,810	2,201	38.6
Carmelo-Campestre-Ceballos	2,871	85.1	17.9	1,180	5,311	13.8
N.Bosque-Ceballos	2,835	86.1	14.5	1,140	1,401	10.2
Clean-up of bay	14,354	431	3.8	140,680	220,270	35.9

## 3. Distributional analysis

- 5.30 A distributional analysis was done of the project because one of its components will directly affect low-income residents, and sufficient survey data were at hand for the purpose. An estimate

was made of the percentage of city residents standing to benefit from the sewerage and bay clean-up projects who are currently living below the poverty line (43,000 Colombian pesos a month for an individual). According to analyses of the surveys conducted, 47.3% of residents who would benefit from the project's sewer components were living in poverty, and 12.4% of those who would benefit from the sewage disposal component were below the poverty line. When the findings for the two components are weighted for the amount of the investment, 24.3% of beneficiaries are found to live below the poverty line. The project thus would not classify as poverty-targeted.

D. Environmental and social viability

- 5.31 The project described in this proposal is part of a broader investment plan that is to culminate in construction of a system to treat and dispose of all of Cartagena's sewage. That system is presently under study; as yet there are no feasibility findings to point the way to the best approach. The proposed project, and more specifically the components addressing the problem of sewage runoff into the bay, thus should be viewed as a first phase in the aforementioned larger plan: it will improve current conditions, but in no way compromise or condition the solution ultimately adopted for the general plan.
- 5.32 On the social benefits side, the project is expected to improve conditions for close to 7,000 low-income families in southwest Cartagena who today have no way of properly disposing of household waste. New or upgraded sewer service will bring down the incidence of waterborne diseases and the lost hours of work such afflictions entail. From an environmental standpoint, the project will improve the quality of surface water at various points along the shores of Cartagena Bay, onto which sewage is currently running. As for the discharge of sewage through the existing outfall, this should have no significant impact on water quality, given the current environmental and ecological conditions in the bay.

E. Project risks

- 5.33 The chief environmental risk in the project is that the temporary sewage-disposal solution described above might become a permanent one. According to engineering studies, the underwater outfall into the bay will reach capacity in 2005. If sewer-system upgrading under the project pushes up population density in middle-income and high-income neighborhoods of the city, that critical point might be reached sooner, thereby increasing the risk of wastewater surface runoff again into the bay. To ensure that measures are being adopted to continue devising a solution for sewage treatment and disposal for the city, it has been agreed that the executing agency will forward to the Bank, within 18 months after signature of the loan contract, the findings of feasibility studies currently under way to come up with an action plan (including designs to the

feasibility level) and a financing proposal for a definitive approach for the city's sewage treatment and disposal.

- 5.34 A risk on the financial side is that if tariff revenues are not adjusted as envisaged in this proposal, there would not be enough money in the Independent Fund to repay the loan, and the city would have to make up the shortfall. To mitigate this risk, one special condition in the loan contract will be a commitment on the part of ACUACAR's board of directors to maintain the current tariff levels and phase in the tariff increase, until the planned tariff is fully in place in 2001, and to demonstrate before March 31 each year that this commitment is being fulfilled.

## LOGICAL FRAMEWORK

NARRATIVE SUMMARY	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
Standard of living of Cartagena residents	Increased recreational use of the bay (walks, swimming, fishing)	Ex post evaluation	
Sanitary conditions in parts of the city that border Cartagena Bay	<p>An end in the project area to sewage running through streets and to wastewater dumped directly into the bay via storm drains</p> <p>Coliform counts in the inner bay are below the figure prescribed in Colombian law as the maximum tolerance for purposes of recreational use entailing direct contact with water.</p>	<p>Physical inspections of current problem areas; ACUACAR operating reports</p> <p>Report from the monitoring program based on sampling and lab analysis</p>	<p>Pollution in the bay from other sources does not negate positive impacts of the project</p> <p>Work continues on choosing a definitive system for building a definitive system for treatment and disposal of sewage.</p>
OUTCOMES			
Service is extended to six subbasins in the west of Cartagena currently without sewer service	1. By the end of the project, a 7,000 increase in ACUACAR's customer base in the six subbasins	1. Census of ACUACAR customers	ACUACAR operates the sewerage systems effectively and efficiently
Sanitary conditions in Bocagrande are rehabilitated and improved.	<p>2.1 Bocagrande service lines and outfall sewers have a capacity in excess of volume of sewage produced in the zone</p> <p>2.2 No more sewage spillovers at pumping stations</p>	2. Physical inspections of current problem areas; ACUACAR operating reports	
Project areas gain proper sewage disposal	3. An end to wastewater surface runoff into Cartagena Bay	3. Physical inspections of current problem areas; ACUACAR operating reports	

NARRATIVE SUMMARY	INDICATORS	MEANS OF VERIFICATION	ASSUMPTION
f 10.3 km of service lines for the sewer 0.6-km Albornoz Campestre pressure 9-km Bellavista-Albornoz collector and Albornoz pumping station in Ceballos subbasin	1.1 Service lines: US\$1.3 million Pressure main: US\$0.2 million Collector: US\$0.3 million Pumping station: US\$0.9 million	Annual ACUACAR reports on system operation and condition	Tender calls for construction new systems are successful  Local counterpart funds available.  Construction quality is satisfactory
f 4.5 km of service lines and 1.3-km Sur-Ceballos collector sewer in Sur-Ceballos subbasin	1.2 Service lines: US\$0.8 million Collector: US\$0.5 million		
f 10.6 km of service lines, 1.4-km Bosque-Ceballos collector, and 1.2-km de la República collector in Nuevo Ceballos subbasin	1.3 Service lines: US\$1.9 million Nuevo Bosque-Ceballos collector: US\$0.5 million Banco de la República collector: US\$0.2 million		
f 6.1 km of service lines, 1.3-km Arroz Campestre collector, and 2.3-km Campestre-Ceballos collector in Campestre-Ceballos subbasin	1.4 Service lines: US\$1.4 million Arroz Barato-Campestre collector: US\$0.5 million Carmelo-Campestre-Ceballos collector: US\$0.9 million		
Caracoles-Bahía collector sewer in Caracoles-Bahía subbasin	1.5 Collector: US\$0.7 million		
placement of 1.2-km Bosque Industrial sewer in Bosque Industrial subbasin	1.6 Collector: US\$0.6 million		
f 19 km of service lines and small collectors in Bocagrande	2.1 Service lines and small collectors: US\$6.3 million		
Construction of Ceballos pumping station and Ceballos-Bosque and 3-km Bosque- Campestre pressure mains	3.1 Pumping station: US\$1 million Ceballos-Bosque pressure main: US\$1.4 million Bosque-Outfall pressure main: US\$1.7 million		
Construction of 0.8-km Bocagrande and Hospital Naval pressure mains, and Bocagrande and Hospital Naval pumping	3.2 Bocagrande pressure main: US\$0.5 million Hospital Naval pressure main: US\$2 million Bocagrande pumping station: US\$0.6 million Hospital Naval pumping station: US\$0.6 million		

NARRATIVE SUMMARY	INDICATORS	MEANS OF VERIFICATION	ASSUMPTION
of 0.8-km Puente Jiménez, 1.8-km Miramar, and 1.6-km Avenida Cuarta s, and 1.3-km El Pastelillo pressure	3.3 Puente Jiménez collector: US\$0.3 million Avenida Miramar collector: US\$0.7 million Avenida Cuarta collector: US\$0.6 million El Pastelillo pressure main: US\$0.3 million		
of 2.8-km San Felipe collector sewer km of small collectors and service Pie de Popa	3.4 San Felipe collector: US\$2 million Pie de Popa service lines and collectors: US\$0.9 million		
ction of a wastewater chlorination expansion of El Bosque pumping rehabilitation of underwater outfall	3.5 Chlorination: US\$0.4 million Pumping station: US\$0.8 million Outfall: US\$0.1 million		



## PROCUREMENT PLAN

Goods procurement and construction	Financing (US\$ million)				
	IDB	LOCAL	TOTAL COST	METHOD	PUBLICATION (q
Pipe and accessories, PVC, concrete and/or reinforced fiberglass, and laying of pipe in Bocagrande	0.0	8.6	8.6	LCB	IV 97
Pipe and accessories, PVC, concrete and/or reinforced fiberglass, for southwest Cartagena, 150 to 750 mm diameter	2.2	0.9	3.1	ICB	II 98
Electromechanical equipment for pumping stations; pipe for collector sewers, pressure mains, and surface and underwater outfall, and chlorination system	3.5	0.9	4.4	ICB	III 98
Laying of pipe in southwest Cartagena, 150 to 750 mm diameter	5.1	2.2	7.3	ICB	III 98
Laying of collector sewers in San Felipe, Manga, and Pie de la Popa, 150 to 1,400 mm diameter	3.9	1.0	4.9	ICB	IV 98
Laying of pressure mains in Ceballos-Bosque, Bosque-Outfall, and Pastelillo	1.6	0.0	1.6	LCB	I 99
Construction of pumping stations in Ceballos; rehabilitation of El Bosque station and underwater outfall; installation of chlorinating equipment	1.0	0.0	1.0	LCB	II 99

al competitive bidding    ICB    International competitive bidding

# TIMETABLE FOR TENDER CALLS

CONTRACTS TO BE TENDERED	YEAR 0	YEAR 1	YEAR 2	YEAR 3	COST (millio
Supply of pipe and accessories, PVC, concrete and/or reinforced fiberglass, and laying of pipe in Bocagrande	LLL	LLEEEEEEEEEEE	EEEEEE		8.6
Supply of pipe and accessories, PVC, concrete and/or reinforced fiberglass, for six subbasins in southwest Cartagena, 150 to 750 mm diameter pipe		IIII SSSSSS			3.1
Supply of electromechanical equipment, concrete, PVC and/or reinforced fiberglass pipe for collector sewers, pressure mains, and rehabilitation of surface and underwater outfall		IIII SSSS	SS		4.4
<b>Civil works</b>					
Laying of pipe in southwest Cartagena (six subbasins), 150 to 750 mm diameter pipe		IIII EEE	EEEEEEEEEEEE		7.3
Laying of collector sewers in Mango, Pie de Popa and San Felipe, 150 to 1,400 mm diameter pipe		IIII E	EEEEEEEEEEEE	EE	4.9
Laying of pressure mains in Ceballos-Bosque, Bosque-Outfall, and Pastelillo, 350 to 750 mm diameter pipe		IIII	EEEEEEEEEEEE	EEEE	1.6
Construction of pumping stations in Ceballos; rehabilitation of El Bosque station and surface and underwater outfall; installation of chlorinating system		II	IIIEEEEEEEEE	EEEEEE	1.0

al tendering      S Supply of goods      I International tendering      E Execution

## **PRINCIPLES GOVERNING THE TRUST**

### **I. Object of the Trust**

- 1.1 The object of the trust arrangement (Independent Fund) is to channel a share of ACUACAR water and sewer rate revenues to repay the Bank's loan to the Cartagena District to fund sewer infrastructure works in the Cartagena Bay drainage area, as delineated in the Master Plan. The loan is for approximately US\$24 million, including interest during construction.

### **II. Monies in the Trust**

- 2.1 Every month, beginning in January 2001, ACUACAR will pay into the trust fund a sum equal to 4.8% of its water and sewer utility rate revenues, the latter revenues being the proceeds of applying the current tariff, including annual indexation prescribed by the Water and Basic Sanitation Regulatory Commission, with the real tariff increases approved by ACUACAR's board of directors through the year 2001.
- 2.2 ACUACAR's obligation to transfer a portion of its revenues as aforesaid will cease on the earlier of the date on which the last of the trust-fund obligations is satisfied and 20 years after the date of signature of the loan contract with the Bank.

### **III. Line of Credit**

- 3.1 A line of credit for the trust fund will be opened with a financial institution, to provide liquidity in the event that monies in the fund on the due date of a repayment installment on the Bank's loan are insufficient to make that payment.

### **IV. Drawings from the Trust Fund**

- 4.1 Monies in the Independent Fund will be used to repay obligations incurred specifically for purposes of repaying the Bank's loan. In addition to the aforesaid obligation, the trust may have incurred others, either with the above-mentioned financial institution or with the Cartagena District. In either event, such obligations derive from borrowings by the trust fund to honor, in due time and form, the commitments associated with the Bank's loan, as explained in a later section of this document. Monies also may be drawn from the trust fund to defray its operating costs.

**V. Operation of the Trust Arrangement**

- 5.1 ACUACAR will pay the covenanted share of its rate revenues into the trust fund monthly, in pesos. The Bank's loan will be repaid in quarterly installments in U.S. dollars, because it is denominated in that currency.
- 5.2 Trust fund receipts will be applied, on the date of receipt, first to the outstanding balance, if any, on the line of credit and interest thereon. If, after such payment, there are still monies in the trust, they will be deposited to an interest-bearing U.S. dollar account in the name of the trust fund until the due date of the next installment on the Bank's loan.
- 5.3 On each IDB loan installment due date, monies in the trust, including interest earned on its cash surpluses, will be drawn to make the following payments, in the order listed:
  - a. Expenses incurred by the Independent Fund since the last installment payment date.
  - b. The installment owing under the loan contract (principal and interest).
  - c. Interest accrued on amounts owed to the Cartagena District.
  - d. Repayment of principal of debt to the Cartagena District (if no amount is owed on the line of credit).
  - e. Prepayment of the IDB loan.
- 5.4 If the monies in the trust fund are insufficient to pay the full amounts owed for obligations a. and b. above, the Trustee will make up the shortfall by drawing from the line of credit the sum needed to pay those two sums in full.

**VI. Monies put in by the District and Ensuing  
District Claims on the Fund**

- 6.1 There are two possible forms of District payments into the Independent Fund:
  - a. Voluntary payments, which the District may effect on any date and in any amount, to accelerate repayment of obligations of the Independent Fund.
  - b. Mandatory payments each year, to pay off the outstanding balance of the line of credit.

- c. Monies provided by the District will be accounted for as a claim against the Independent Fund and will earn interest at market rates.

PROPOSED RESOLUTION

COLOMBIA. LOAN \_\_\_\_/OC-CO TO THE DISTRITO TURISTICO Y CULTURAL  
DE CARTAGENA DE INDIAS  
(Cartagena Sewer System)

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 Distrito Turístico y Cultural de Cartagena de Indias, of Colombia, as Borrower, and the República de Colombia, as Guarantor, for the purpose of granting the former a financing to cooperate in the financing of the Cartagena Sewer System. Such financing will be for the amount of up to twenty four million three hundred dollars of the United States of America (US\$24,300,000) from the Single Currency Facility of the Ordinary Capital resources of the Bank, and will be subject to the "Special Contractual Conditions" and the "Terms and Financial Conditions" set forth in the Executive Summary of the Loan Proposal.