BASIC SANITATION PROGRAM FOR SMALL MUNICIPALITIES

(BO-0175)

EXECUTIVE SUMMARY

BORROWER AND GUARANTOR:	Republic of Bolivia	
EXECUTING AGENCY:	Ministry of Housing and Basic Services (MVSB)	
AMOUNT AND SOURCE:	IDB (FSO):	US$40 million
	Local counterpart funding:	US$16 million
	Total:	US$56 million
FINANCIAL TERMS AND CONDITIONS:	Amortization period:	40 years
	Disbursement period:	5 years
	Interest rate:	1% for the first 10 years and 2% for the next 30 years
	Inspection and supervision:	1%
	Credit fee:	0.5% annually on the undisbursed balance

OBJECTIVES: The objectives of the proposed program are: (i) to increase the coverage and quality of basic sanitation services in communities of up to 5,000 inhabitants; (ii) enhance the operational ability of the municipalities and of other executing entities and operators of these projects; and (iii) make basic sanitation services self-sustaining over the medium and long terms, by involving the community in the preparation, execution and operation of basic sanitation projects.

DESCRIPTION: The program will include the following components: (i) water supply and sanitation projects in communities of up to 5,000 inhabitants throughout the country (US$37.3 million); (ii) community development, so that the community can participate in the preparation, execution, operation and maintenance of projects constructed using program resources, through courses and seminars to ensure the sustainability of the services (US$4.5 million); and (iii) institutional strengthening of municipalities and basic sanitation and housing units (UNASBVIs), with funding for consulting services to train staff responsible for technical assistance and for equipment needed to establish a database for the sector (US$3.5 million).

SOCIAL AND ENVIRONMENTAL REVIEW: Taking into consideration the recommendations of the CESI, the program has the following characteristics: (i) the cost of measures to mitigate negative impacts is included in the costs of the works; (ii) municipalities participating in the program have to demonstrate that they have the installed capacity to implement the environmental management system envisaged in the program and the commitment to maintain it, at the agreed levels; (iii) the operating regulations include the environmental control procedures to be used and the mechanisms to prevent gender discrimination, by ensuring that women participate in the water committees; and (iv) programs and materials adapted to the various idiosyncracies and languages of the country will be used in the community development component, in order to avoid communication problems, given that most of the beneficiaries of the program are members of indigenous groups.

BENEFITS: With program execution, the following benefits will be achieved: (i) expand the coverage of rural water supply and sewerage systems to approximately 450,000 persons, through some 1,000 self-sustainable systems; and (ii) reduce the incidence of waterborne diseases by 10% in the communities served.

RISKS: The main risks of the operation are:

1. Operation of the institutional framework. Taking into account the many stakeholders involved in the execution of the program, there is a risk of delays in execution. However, this risk would be minimized by the MVSB's experience in executing a similar program (PROSABAR). In addition, it is anticipated that part of that program's staff will be incorporated into the program's executing unit, which will be supported by a management agency. Furthermore, the UNASBVIs will be augmented by the hiring of technical staff for the execution of the program.

2. Fees, operation and maintenance. There is a risk that once the works are completed, they will not be properly maintained due to a lack of funds generated by fees, and/or from insufficient technical capacity for large-scale maintenance. Experience in the execution of the PROSABAR project suggests that, with the community development component, there is a lower risk that the communities will fail to pay the fees; thus, there would be resources for maintenance. In terms of technical capacity, the MVSB is introducing the Sanitation Information and Technical Assistance

Network (RIATS) at the municipal level to support communities in the operation of the systems and large-scale maintenance. Municipalities must belong to the RIATS to be eligible for the program.

THE BANK'S COUNTRY AND SECTOR STRATEGY:

The objective of the Bank's operating strategy in Bolivia is to support the efforts of the government to reduce poverty, including support for actions to improve access to basic services in education, health, sanitation and housing. The strategy includes three lines of action: (i) economic growth and generation of opportunities; (ii) development of human capital and access to basic social services; and (iii) support for governance and consolidation of reforms. This operation has a direct bearing on the second line of action.

The Bank's strategy for the sector is to support the government in its efforts to improve the health conditions of the population and consolidate reforms, especially in the decentralization process. The proposed program fits within this strategy, since it would finance the rehabilitation and introduction of rural water supply and sanitation projects, strengthen entities in the sector and provide training to the participating communities.

SPECIAL CONTRACTUAL CONDITIONS:

Prior to the initial disbursement, the executing agency shall provide evidence, to the Bank's satisfaction, that: (i) the executing unit, with basic personnel to operate it and a timetable for incorporating additional staff, has been established (paragraph 3.2); (ii) the program's management agency has been selected (paragraph 3.5); (iii) operating regulations for the program, agreed upon with the Bank, have entered into force (paragraph 3.8); and (iv) the specialized firm that will concurrently supervise the program has been contracted (paragraph 3.7).

Other special conditions for the operation would be: (i) prior to the participation of each prefecture, evidence that the latter has signed an agreement with the MVSB based on a model agreement previously agreed upon with the Bank; (ii) prior to the participation of each municipality, evidence that the latter has signed an agreement with the MVSB based on a model agreement previously agreed upon with the Bank (paragraph 3.7); and (iii) prior to issuing the call for bids for the works, the management agency for the program will have been hired (paragraph 3.7).

The MVSB has requested that the Bank recognize, as local counterpart, expenditures related to program preparation of up to the equivalent of US$1,270,000. Such expenditures, incurred after June 8, 1998, would be recognized if they fulfilled the requirements established in the loan contract (paragraph 3.32).

POVERTY-TARGETING AND SOCIAL POLICY CLASSIFICATION: This operation qualifies as a social equity enhancing project, as described in the indicative targets mandated by the Bank's Eighth Replenishment (document AB-1704). Furthermore, this operation qualifies as a poverty targeted investment (PTI) (see paragraph 5.36). The borrower will not be using the 10 percentage points in additional financing to which it would be entitled.

EXCEPTIONS TO BANK POLICY: None

PROCUREMENT OF GOODS AND CONTRACTING OF WORKS AND CONSULTING SERVICES: Current Bank policy will apply for procurement of goods and contracting of works and consulting services to be financed with program resources. When the Bank's financing resources are used, the minimum amounts above which procurement will be done through international competitive bidding will be: US$2 million for works and US$250,000 for goods and related services. Contracts for consulting services involving amounts above US$200,000 will require international competitive bidding.

I. FRAME OF REFERENCE

A. Coverage of water supply and sanitation services

1.1 Bolivia has one of the lowest rates of water supply and sanitary sewerage coverage in Latin America. In the urban areas (communities with more than 2,000 inhabitants), it is estimated that there is an 81% coverage for public water supply services and 36% for sanitary sewerage (an additional 27% use latrines). In the rural areas, where 40% of the population lives, it is estimated that only 31% have an organized water supply service and approximately 19% use latrines or other appropriate systems for disposal of excreta. This causes precarious health conditions among the Bolivian population, with intestinal and waterborne diseases being the second most common type of diseases reported and the first in infant mortality and morbidity. There has been a resurgence of cholera epidemics since 1991, due to inadequate sanitation education, added to the already-mentioned lack of basic sanitation services.

1.2 This situation becomes even more critical when one considers that these figures do not reflect the quality and quantity of the water being distributed, or the availability of appropriate sanitary fixtures and connections. Based on these data, the need for sanitation education on the proper use of the installed services can be determined. The following table presents the data on estimated coverage of basic sanitation services in 1997.

Area	Total population	Population with water supply services	%	Population with sanitation services	%
Urban	4,472,974	3,640,792	81	2,817,974	63
Rural	3,300,026	1,023,008	31	627,005	19
Total	7,773,000	4,663,800	60	3,444,979	44

B. Government strategy for the rural sector

1.3 Beginning in 1993, the Bolivian government began to introduce a new strategy for meeting the basic needs of rural communities, which are the poorest in the country. The strategy consists of allowing the community to participate from the beginning in seeking a solution to basic sanitation problems. The community is provided with information on the levels of service they could have and the costs associated with each level. The community decides which level of service to adopt and is given information regarding the fees that will have to be paid in order to cover the costs of operation and maintenance. The government, through the Ministry of

Housing and Basic Services (MVSB) and other institutions in the sector, provides the technical advisory services necessary for supporting the community in the process of identifying solutions, preparing and executing the projects and subsequently managing the systems. This model is known as the rural basic sanitation program (PROSABAR) and has received funding from the International Development Association (IDA) and from the Organization of Petroleum Exporting Countries (OPEC), as well as counterpart funds from municipalities, communities and the government.

C. Transfer of responsibilities to municipalities

1.4 The economic stabilization achieved in Bolivia since 1985 has opened the door for modernization of its institutional structures, especially in the public sector. An important part of this process is government decentralization, which is becoming one of the major components of the country's political agenda. Since 1986, with the entry into force of the Municipalities Act, and subsequently the Community Participation Act, local and regional entities have been gaining greater visibility within the country.

1.5 In accordance with this law, the municipalities receive resources of which 85% must be earmarked for infrastructure works, and only 15% for current expenditures. The government's current policy for the sector, which is being implemented in programs currently in execution, calls for municipalities and communities to participate with not less than 30% of the total cost of each individual project. Normally, the municipality contributes 10% and the community 20%, with the latter made up of 5% cash and 15% local materials and labor. The proposed plan for this operation will make it possible for the program to benefit a greater number of people; furthermore, greater community support will result in greater sustainability of the systems in the long term.

D. Main agencies in the sector

1.6 Water supply and sewerage services are delivered by municipal agencies, with few cases where the area of activity covers more than one locality. In some cities – and in many smaller localities – the institutions have organized in the form of cooperatives, i.e., nonprofit private entities. In others, the services are delivered by force account through the municipal governments or by municipal enterprises, some of which involve concessions to the private sector. In rural areas, water committees are generally set up to operate community services.

1.7 The main public agencies active in the sector are: (i) the MVSB, which is responsible for making policies, rules and regulations in the sector, seeking financing and monitoring the functioning of the sectoral system; (ii) the Social Investment Fund (FIS), works in communities of up to 5,000 inhabitants; (iii) the Fondo Nacional de Desarrollo Regional [National Regional Development Fund] (FNDR),

executing agency for works in communities of more than 10,000 inhabitants; 1/ and (iv) the Unidades de Saneamiento Básico y vivienda [basic sanitation and housing units] (UNASBVIs), functionally attached to the MVSB, which implement the policies and prepare the programs at the departmental level.

E. Sector regulation

1.8 In 1994, Congress passed the Sector Regulation System Act (SIRESE), the objective of which is to regulate, monitor, and supervise the activities of various sectors, including water supply and sewerage. The act established a General Board, attached to the Ministry of Finance, and sector boards in charge of each specific sector.

1.9 The boards' functions include approving and publishing prices and rates, granting and renewing concessions, promoting efficient service delivery, and, in general, complying with and enforcing legal requirements and sector regulations. The act thereby centralizes the regulatory function in a single agency, the Water Board.

F. Self-sustaining rural water and sanitation systems

1.10 Most of the rural systems in Bolivia are not self-sustaining. According to available information, some systems have had to be constructed and rehabilitated several times because of lack of maintenance resulting from: (i) lack of technical capacity to execute the necessary repairs due to the fact that, generally, the systems serve small communities where this capacity is not present; and (ii) lack of revenue to cover operation and maintenance of the systems, due to the fact that the community has not been made sufficiently aware of the importance of paying for the service being used. In those cases where the community has participated in the design, construction and subsequent administration of the system, there has generally been greater success in this respect.

G. Fees

1.11 The government's policy with regard to rural sanitation systems is for users to pay fees that will produce sufficient revenue to cover the costs of operation and maintenance, and to the extent possible, depreciation of the fixed assets. In view of the income level of the population which these projects target, this policy is considered acceptable.

1.12 This goal is being achieved in projects executed by PROSABAR, where a great deal of importance has been placed on the community development component, which begins by providing training to the

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1/ Communities of between 5,000 and 10,000 inhabitants are served on a case by case basis by one of the Funds.

community before the construction of the project, and maintains its presence until after it is completed. This training includes setting up a water committee in the community and instruction for members of the community in the operation, maintenance and administration of the systems. In cases where this activity was not conducted in a timely way, it has been difficult to establish appropriate fees.

1.13 PROSABAR, through the UNASBVIs, is considered to be carrying out appropriate follow-up on the application of fees and taking action when it sees problems in this area.

H. Bank strategy

1.14 The objective of the Bank's operations strategy in Bolivia is to support the government's efforts to reduce poverty, including actions to improve access to basic services in education, health, sanitation and housing. The strategy includes three lines of action: (i) economic growth and creating opportunities; (ii) development of human capital and access to basic social services; and (iii) support for governance and consolidation of reforms. This operation has a direct bearing on the second line of action.

1.15 The Bank's strategy for the sector is to support the government in its effort to improve the health conditions of the population and consolidate reforms, especially in the decentralization process. The proposed program is a part of this strategy, since it would finance the introduction or rehabilitation of rural water supply and sanitation projects, strengthen the institutions in the sector and provide training to participating communities.

I. Action by the Bank and by other financial institutions

1.16 The Bank has gained experience through the execution of several operations in the sector, the most recent having been carried out primarily through the FIS in small communities and by the FNDR in communities of over 10,000 inhabitants. Operations financed by the Bank that have already been executed met the anticipated objectives.

1.17 In 1996, the Bank approved the urban basic sanitation program, with a loan of US$70 million (987/SF-BO), which is being executed by the FNDR. The program is aimed at specific investments in the sector, for large communities and for institutional strengthening of the enterprises responsible for providing the services, through improvement of their administrative and operational efficiency. Within the same program, through technical cooperation ATN/MT-5442-BO, executed by the Ministry of External Trade and Investment, the Bank is financing the establishment of a regulatory framework for the water supply and sanitation sector, and the strengthening of the Water Board for the purpose of appropriately

separating the policy-setting, regulatory and service delivery functions and in order to promote private sector participation in service delivery.

1.18 Furthermore, the Bank has financed two urban development and sanitation programs, known as PRODURSA I (completed) and PRODURSA II, which is being satisfactorily executed by the FNDR. These operations, approved in 1990 and 1993, with financing of US$60 million (loans 601/OC-BO and 846/SF-BO) and US$64 million (loans 777/OC-BO and 914/SF-BO) respectively, have been 100% and 96% disbursed, with their resources completely committed. Approximately 23% of the resources were earmarked for sanitation works.

1.19 In relation to the rural subsector, the Bank participated in the financing of US$37.8 million (loan 741/SF-BO) to the Emergency Social Fund, created by the Government of Bolivia in 1986 in order to address the needs of the social sectors, alleviate poverty and create jobs. This fund, at the close of its operations in 1991, had executed 3,269 projects in the areas of health, sanitation and education, at a cost of US$191 million. It is estimated that 25% of the resources were used for sanitation projects.

1.20 In 1991, the FIS was created, with the objective of long-term poverty reduction, particularly in communities of less than 5,000 inhabitants and in marginal urban areas. The Bank is currently contributing financing of US$60 million (loan 950/SF-BO), approved in 1995. Its objective is to increase coverage and enhance the quality of public services in the areas of health, basic sanitation and education, in rural and peri-urban areas. It is estimated that by the end of 1999, all of the financing will have been disbursed. Under this loan, US$16.6 million was earmarked for financing water supply and sanitary sewerage projects for small communities, including components of sanitation education. Currently, all of the resources are committed, with 83% of the financing having been disbursed.

1.21 The sector has also received financing from sources such as KfW, the Government of Japan, the IDA and OPEC. In addition, other organizations, such as Cooperative for Assistance and Relief Everywhere (CARE) and the United Nations Children's Fund (UNICEF) are also active in the sector, financing rural water and sanitation projects. Nevertheless, investment needs greatly exceed available resources.

1.22 At the end of 1997, the Bank approved technical cooperation ATN/SF-5763-BO for US$650,000, earmarked for strengthening the capacity of predominantly rural prefectures to identify, prioritize, plan, execute, and evaluate investment projects. The operation is in its initial execution phase, 4% of the resources having been disbursed.

J. Lessons learned

1.23 The following lessons were learned from the execution of the above programs:

a. The community should participate in the decision on the level of service to be offered. In those water supply systems built with partial financing from 950/SF-BO, it is unusual for a community to be charged fees and for it to pay them. This is primarily due to the fact that the systems were generally constructed without the participation of the community, either in the decision regarding the level of service or in regard to the construction itself. Thus, the system ended up being something that was imposed and, at times, delivered without any cost to the community. Because of this, there is little or no feeling of ownership.

b. The community should contribute part of the cost of the projects. Systems that have been constructed and delivered at no cost to the community have failed. The main result has been that the operation and maintenance of the systems are generally unreliable, with cases of recently constructed systems not being operated as planned having their useful life compromised.

c. The decision of the community should not be altered by the technical staff. In the few cases in which the community participated in the decision-making process regarding the type of service, the community frequently opted for a level of service that was subsequently changed by the organization's technical staff responsible for technical review of the project, generally making the solutions more expensive to construct.

d. Projects preceded by a program of community development have a greater chance of medium- and long-term sustainability. PROSABAR has changed the approach to the problem, emphasizing the importance of community participation and including community development as a basic element. Through this approach, the members of the community learn about the advantages of having a water supply system, they are shown how to make good use of the water, and the responsibilities that go along with such a system are clarified. These include community support for the investment, payment of fees and maintenance of the service. Among the systems constructed under PROSABAR, fees are paid in more than 80% of cases, systems are generally being well maintained and some communities are in the process of expanding the service with their own resources.

e. There is a lack of technical capacity for maintaining the systems. The main problem of the systems constructed under PROSABAR is the lack of technical capacity in most of the

municipalities for the communities to meet the demands for large-scale maintenance. In order to deal with this problem, the Office of the Deputy Minister for Basic Services (VMSB), which is attached to the MVSB, is introducing the Sanitation Information and Technical Assistance Network (RIATS), which trains technical personnel at the municipal level to meet these demands and to monitor the systems that have been constructed, noting deficiencies and problems, as well as obtaining information, in the municipality, on the coverage of the services. This information is sent to the VMSB, so that plans for future action can be made.

K. Design of the proposed program

1.24 The proposed program has been designed taking these lessons into consideration, and in coordination with other multilateral lending institutions and NGOs active in the sector. More emphasis will be placed on community development, with the process beginning at least two months before construction. The community will be consulted about the level of service it would like and whether it is willing to pay, and will be kept informed on the progress of the works and on any changes that it may be necessary to introduce.

1.25 The community will contribute on the order of 20% of the cost of the works, of which at least 5% will be in cash and the rest in local materials and labor. The solutions decided on for the level of service approved by the community may not be modified without the consent of the community as a whole. In this way, the sense of ownership of the system being built will be enhanced, ensuring that it will be maintained.

1.26 The introduction of the RIATS will be supported to ensure that the communities have assistance for operation and maintenance problems that are beyond the capacity of the individuals trained during the community development activities.

1.27 To support program execution, a management agency will be hired, charged with providing support for the executing unit. While this type of execution format has never been used in Bolivia for this type of program, it is deemed advisable, considering that the executing unit's capacity is thereby reinforced without having roster increase the MVSB's payroll.

1.28 The program will finance water supply and sanitation systems that will be self-sustaining in the medium and long terms by involving the affected community in decision-making and giving it responsibility for part of the cost of the work through contributions in cash, in kind and in the form of services. This will enhance the sense of ownership of the community infrastructure.

II. THE PROGRAM

A. Objectives

2.1 The objectives of the proposed program are: (i) to increase the coverage and quality of basic sanitation services in communities of up to 5,000 inhabitants; (ii) to strengthen the operational capacity of the municipalities and other entities executing and running these projects; and (iii) to make basic sanitation services self-sustaining in the medium and long terms, by involving the community in the preparatory work, execution, and operation of the basic sanitation system.

B. Description

2.2 The program will include the following components: (i) water supply and sanitation works in communities of up to 5,000 inhabitants throughout the country (US$37.3 million); (ii) community development, by means of courses and seminars, so that, as a way of ensuring the sustainability of the services, the community participates in the preparation, execution, operation and maintenance of the projects built with program resources (US$4.5 million); and (iii) institutional strengthening for municipalities and for the basic sanitation and housing units (UNASBVIs) where consulting services will be funded to train personnel in charge of the technical assistance and equipment needed to set up a database for the sector (US$3.5 million).

C. Goals

2.3 The program proposes to achieve the following goals: (i) increased coverage of rural water supply and sewerage systems to reach approximately 450,000 individuals who will be covered by about 1,000 self-sustaining systems; and (ii) 10% reduction in the incidence of waterborne diseases in the communities served.

D. Costs

2.4 The total cost of the program is estimated at US$56 million. The distribution by funding source and investment category is shown in the following table.

COSTS AND FUNDING SOURCES
(thousands of U.S. dollars)

CATEGORIES	IDB/FSO	LOCAL COUNTERPART 1/	TOTAL	%
ENGINEERING AND ADMINISTRATION	**4,380**	**1,640**	**6,020**	**10.8**
Studies	200	200	400	0.7
Administration and supervision	4,180	1,440	5,640	10.0
Executing Unit	700	1,440	2,140	3.8
Management of the works	2,190	-	2,190	3.9
Supervision of works	1,290	-	1,290	2.3
DIRECT COSTS	**29,466**	**12,350**	**41,816**	**74.7**
Water supply and sewerage works	26,236	11,080	37,316	66.6
Community development	3,230	1,270	4,500	8.0
ASSOCIATED COSTS	**4,954**	**1,610**	**6,564**	**11.7**
Institutional strengthening	3,194	360	3,554	6.3
Operational and financial audit	1,100	-	1,100	2.0
Project preparation	660	1,250	1,910	3.4
FINANCIAL COSTS	**1,200**	**400**	**1,600**	**2.9**
Interest	800	-	800	1.4
Credit fee	-	400	400	0.7
Inspection and supervision	400	-	400	0.7
TOTAL	**40,000**	**16,000**	**56,000**	**100.0**
%	**71.4**	**28.6**	**100**	

1/ Includes contribution from municipalities and prefectures.

2.5 The main investment categories are described below:

1. Engineering and administration (US$6 million)

2.6 This item, which represents 10.8% of the total cost of the program, is made up of the following categories:

a. Studies (US$400,000). This includes the consulting services needed to assist the executing agencies in identifying the technical issues that may arise during construction.

b. Administration and supervision (US$5.6 million). This category includes the expenses of the executing unit, the management agency, and the firms that will be supervising the execution of water supply and sanitation works to be carried out by construction firms.

2. Direct costs (US$41.8 million)

2.7 This item represents 74.7% of the total cost of the program and includes the following components:

a. Water supply and sanitation works (US$37.3 million). Representing 66.6% of the program total, this includes the following works: catchment, supply lines, pumping, treatment, storage, and distribution of water; sewerage networks, wastewater treatment plants, and individual connections.

b. Community development (US$4.5 million). This includes hiring specialized firms and nongovernmental organizations (NGOs) active in the sector to work with the community so that it: (i) participates in the development and execution of the projects; (ii) receives sanitary and environmental education; (iii) becomes aware of the importance of paying fees to ensure the sustainability of the service; and (iv) organizes and gets the training needed to administer the resources. This represents 8% of the program total.

3. Associated costs (US$6.5 million)

2.8 This item represents 11.7% of the program total and includes the following categories:

a. Institutional strengthening (US$3.55 million). This represents training of technical personnel from the UNASBVIs and municipalities, and the purchase of equipment needed to expand and improve the RIATS.

b. Operational and financial audit (US$1.1 million). This item includes resources to hire a firm of auditors to perform recurrent reviews of procurement and disbursement processes and overall project management.

c. Project preparation (US$1.91 million). This represents the hiring of consultants to prepare the remainder of the projects to be funded by the program.

4. Financial costs (US$1.6 million)

2.9 This item, which represents 2.9% of the total cost of the program, includes: (i) interest that will be accrued during the period of execution; (ii) the credit fee; and (iii) the costs of the Bank's inspection and supervision of the program.

E. Program funding

2.10 The Bank will contribute US$40 million from the Fund for Special Operations to be disbursed in foreign exchange, pursuant to Bank policies. This amount represents 71.4% of the total cost.

2.11 The local contribution, for an amount of US$16 million, or 28.6% of the total cost of the program, will come from the communities benefiting from the program, the municipalities, the UNASBVIs, and the VMSB. Of the works component, the municipalities will contribute 10% and the communities 20%. The community contribution will be at least 5% in cash and the rest in labor or materials. The UNASBVIs and MVSB will contribute to project preparation, the management and supervision of works, and institutional strengthening.

2.12 The prospective loan will have the following conditions: (i) 1% interest rate for the first 10 years and 2% for the next 30 years; (ii) credit fee of 0.5%; (iii) inspection and supervision fee of 1%; (iv) disbursement period of 5 years; (v) grace period of 5 years; and (vi) amortization over 40 years.

III. EXECUTION OF THE PROGRAM

A. The executing agency

3.1 The execution of the program will be the responsibility of an executing unit (EU) that will be set up in the MSVB in the Office of the Deputy Minister for Basic Services. This unit will be the sole interlocutor with the Bank. It will be in charge of the financial administration of the program and will be responsible for coordinating the activities carried out by other entities participating in the program. This unit will basically be comprised of the staff from the unit that currently is in charge of administration of the rural basic sanitation program (PROSABAR), partially financed by the IBRD, which is currently in the final phase of execution.

3.2 **The borrower must show, before the first disbursement, that the EU has been set up, that the basic personnel needed for its functioning have been assigned to it, and that there is a timetable for the hiring of staff as the program's execution requires.**

3.3 Initially, this unit will be run by a director and should have at least the following divisions in order to carry out its functions:

a. Technical division, which, among other functions, will approve the inclusion of projects in the program issue calls for bids and award contracts, approve requests for disbursements for the execution of the works, and ensure that the management agency and the contractors carry out their activities diligently, within the terms agreed on, and following the procedures set forth in the program's operating regulations. In addition, it will be responsible for execution of the institutional strengthening component.

b. Social advisory services division, responsible for including community development projects in the program, participates in awarding the respective contracts, approves requests for disbursement related to execution of this component, and provides support to the UNASBVIs, which will share responsibility for contracting the respective consulting services.

c. Administrative/accounting division, which will be in charge of the financial administration of the program, including submitting requests for disbursement to the Bank, maintaining accounting records, preparing the program's financial statements, and preparing all the financial information that might be needed during the execution of the program.

d. Information technology division, which will maintain a database with all the information on the program's execution and achievement of objectives, including the cost of each system built, operation and maintenance costs, fees, number of users, etc.

B. The management agency

3.4 A management agency will be involved in the execution of the program's works and will have the following main functions:

a. To support the municipalities in the process of preparing information for bidders and calls for bids, and selecting the most attractive bids, sending the documentation to the EU's bids committee for review and eventual awarding of contracts.

b. To prepare the contracts for the execution of works.

c. To supervise the execution of the works, for which it will - pursuant to the Bank's rules - hire specialized firms, approve the certificates of progress of the works, prepare the requests for payment to contractors, and prepare the requests for disbursement so that the EU, after reviewing them, can submit them to the Bank.

3.5 The management agency will be a consulting firm or specialized agency with international experience in the management of similar or larger projects. ***The selection of the management agency will be through international competitive bidding and will be a condition precedent to the first disbursement. The firm must be hired prior to the call for bids for project works.***

C. The UNASBVIs

3.6 The UNASBVIs will have the following functions in the execution of the program:

a. In the promotion process: promote the project in the community, so that the community puts in a request for the project with the respective municipal government, which will then include it in its annual works plan (AWP).

b. In the preinvestment process: (i) prepare the information for bidders, issue calls for bids, select the most attractive bid and award the preinvestment study; (ii) commission the project's preinvestment studies and follow up on their execution; (iii) approve the studies and pay the designers; and (iv) carry out the technical, economic, financial, and environmental evaluation of the projects, recommending, where appropriate, that the EU approve them.

c. In the community development component: issue a call for bids and participate in awarding contracts and approving payments related to the program's community development projects, formulate terms of reference and monitor their preparation. Will also prepare a final report on each project.

d. During the operation of the system: (i) ensure that when the water supply system is put into operation, the respective water committee has been formed, and that its members have received training in the administration and maintenance of the system; and (ii) supervise the activities of the water committees that will be responsible for operating, maintaining, and managing the systems.

e. Participate in the bids committee.

D. Agreements and contracts

3.7 In order to participate in the program, the municipalities and prefectures will have to sign the following agreements:

a. Between the MVSB and the prefectures for the latter to commit to maintaining the minimum personnel needed in the UNASBVIs, and in the environmental units and to providing the funds needed for preinvestment.

b. Between the MVSB and the municipalities, committing the latter to maintaining the trained technical personnel that will be part of the RIATS.

E. The program's operating regulations

3.8 The program will be governed by a set of operating regulations containing the specifications for execution, which were previously agreed on with the Bank. ***The final version of these operating regulations must be submitted to the satisfaction of the Bank before the first disbursement of the prospective loan.***

3.9 The operating regulations establish eligibility criteria and the responsibilities of the participating entities, from identification to operation and maintenance of the projects to be built and the methods to be used in studies for the projects. The main elements of the operating regulations appear below.

1. Eligibility criteria

a. A project must: (i) be feasible from the technical, economic, financial, and environmental standpoints, based on the study conducted in accordance with the standards set forth in the operating regulations; and (ii) reflect the desire and willingness of the community to participate in the costs of the

investment, administration, operation, and maintenance of the system.

b. All the country's departments/prefectures and municipalities are potentially eligible once they sign agreements with the MVSB. All communities with populations under 5,000 are eligible. In the case of prefectures, it will also be required that the necessary staff has been hired, including environmental specialists (see paragraph 3.26).

c. Each municipality must contribute a cash amount representing 10% of the total cost of each project.

d. The communities must: (i) decide on the level of service they wish to have and agree to pay the corresponding costs and provide financial contributions; (ii) contribute 20% of the total cost of the project, including at least 5% in cash and the rest in labor and contributions of local materials, or in some form to be negotiated with the municipality; (iii) legally establish water system operating committees; and (iv) commit themselves to paying a fee to cover the costs of operation, maintenance, and a reserve fund for rehabilitation and replacement of electromechanical equipment. Those communities that have received funding for the same purpose in the last five years will not be eligible except where expansion is involved.

2. The project cycle 2/

a. Promotion

3.10 Promotion of the projects will be the responsibility of the UNASBVIs, which will visit the communities, stimulating their interest in the execution of a water or sanitation project, and advising them on the submission of a request for the municipal government to execute the works.

3.11 The municipality, which will take requests to execute projects from various communities, will consolidate and prioritize the requests. Once a project is ranked, an initial technical exploration will be conducted with the support of the relevant UNASBVI. The municipality will proceed to include the project in its annual works plan, and the prioritized requests that have been given precedence and been included in the annual works plan will be sent to the UNASBVI.

2/ A project execution flow chart appears at the end of this chapter.

b. Preinvestment

3.12 Once the requests have been received, the UNASBVI will put together preinvestment packages, which will be made up of infrastructure projects at the final design level, with the socioeconomic survey and baselines prepared and processed by the communities. The UNASBVI will proceed to invite bids and award the various preinvestment packages, informing the EU so that the project can be included in the works plan on a preliminary basis.

3.13 The consulting firm that is awarded the preinvestment package will present the levels of services to the communities for them to decide what level of service they desire and are able to pay for. Then the final design of the works will be completed. The UNASBVI will supervise the preinvestment phase and, upon its completion, will evaluate the projects from the technical, economic, financial, and environmental standpoints.

3.14 The UNASBVI will approve or reject the projects and will inform the EU, which will ratify the approvals and formally include the projects in the works plan. The preinvestment will be financed with funds from the departmental prefectures.

c. Bidding and contracts for community development and works

(i) Community development

3.15 For the community development component, the UNASBVI will prepare the documents relating to bids for the community development package and will invite bids. The bids committee, along with the UNASBVI, will award the bids. The EU will verify the guarantees and sign the contracts with the executing entity.

(ii) Works

3.16 For the works component, the management agency will prepare bid documents and will work with the municipality to invite bids for the works. The bids committee, chaired by the head of the EU, will, with the support of the management agency and participation of the respective municipality and UNASBVI, award the investment package.

d. Execution and supervision

(i) Community development

3.17 For the community development component, the UNASBVI will be responsible for supervising execution and monitoring both the program itself and the financial aspects. Based on the progress of the component, it will request disbursements from the EU. The UNASBVI will be responsible for coordinating the execution of the community development component with the execution of the work.

(ii) Works component

3.18 The management agency will monitor the program and finances and will subcontract the supervision. As it receives and approves the certificates of works progress, it will request funds for paying the contractor. The management agency will prepare disbursement requests, complying with Bank requirements. The requests will be submitted to the EU for subsequent transmittal to the Bank.

3.19 Before the beginning of each project, the EU will ensure that the funds to be contributed by the municipality and community will be available in a timely fashion, and will create a timetable for their delivery.

3.20 All disbursements for the community development component must be approved by the EU's social advisory services division, and disbursements for the works component must be approved by the EU's technical division. The technical division is to properly monitor the local contribution made by the municipalities and the manner in which it is used.

F. The project sample

3.21 The MVSB made available to the Bank 142 water supply and basic sanitation projects, with a total investment cost of US$9.5 million, in order to put together the sample of projects for the program. As a result of the technical, economic, financial, institutional, and environmental evaluations that were conducted, 98 feasible projects were chosen, for an approximate sum of US$5.5 million, representing 14.7% of the direct cost of the works. According to the project preparation timetable, at the start of the operation, feasible projects representing more than 20% of the overall value, needed for execution of the first year of the program, will be identified.

3.22 The main features of the project sample are shown in the following table.

Type of project	Number of projects submitted	Number of viable projects	Average cost (in US$)	Average population
Water supply	116	81	32,100	410
Sanitation	26	17	107,900	2,570
Total	142	98		

3.23 The water supply and sewerage projects that were reviewed are at the basic design stage, which makes it possible to evaluate their viability and costs with an adequate degree of reliability. For satisfactory completion of the works, some of the projects will have to be adjusted according to the recommendations made during

the analysis, a copy of which will be included as an annex to the program's operating regulations.

3.24 To ensure economic efficiency in allocating resources, the program will fund those communities where the systems have a lower per capita cost and greater impact in terms of saving resources (communities with great difficulty in obtaining water). For this purpose, a representative sample was evaluated by means of cost-benefit analysis, on the basis of which cost efficiency parameters were identified. These parameters were used to determine the viability of the rest of the projects to be funded by the program, which will simplify the work of the UNASBVIs.

G. Environmental factors

3.25 By improving the management of basic sanitation systems and increasing their coverage in communities with fewer than 5,000 inhabitants, the proposed program would also improve existing social and environmental conditions. The negative environmental impacts of the type of works to be built with the program are in general localized and temporary in nature, consisting primarily of increased noise and dust in the streets where ditches will be dug to put pipes, and the risks that the ditches represent for the population. The positive impacts are associated with the use of the water supply and sanitation systems built under the program, and in order to maximize these, an education component has been included in the community development component.

3.26 Technical cooperation loan 929/SF-BO to the Ministry of Sustainable Development and Environment, currently in execution, which funds the Ministry's institutional strengthening, provides for the hiring of environmental specialists in the nine municipalities that are departmental seats, in order to create environmental units in each one. This process is all but completed, with only three departments still having to hire their respective specialist. These environmental units will be responsible, during the execution of the program, for approving the projects prepared by the UNASBVIs in accordance with the environmental procedures that appear in the operating regulations. In addition, these units will be responsible for monitoring and supervising the implementation and effectiveness of the environmental impact mitigation measures proposed for the different works connected with the proposed program. The prefectures will be responsible for ensuring that these units are maintained. The agreements that will be signed between the MVSB and the prefectures will establish this requirement.

3.27 Due to the fact that most of the program's beneficiaries are members of indigenous groups, measures necessary to avoid communication problems will be taken in the execution of the community development and sanitation education components, and materials and programs will be adopted to the country's various

idiosyncracies and languages. The operating regulations include mechanisms to prevent gender discrimination in the components mentioned, and ensure participation by women in the water committees.

3.28 The operating regulations, as mentioned above, also include the program's environmental monitoring procedures. The costs of mitigating measures for adverse impacts will be included in the cost of the works, since the bid specifications will include the rules and regulations that the construction firm must observe. In special cases where environmental impact studies are required, the cost of mitigating measures will be included in the particular project's budget. In the case of water supply projects, care will be taken to ensure that wastewater is disposed of properly.

3.29 On January 8, 1999, the environmental assessment criteria for the program's projects were made available to the public. The environmental and social impact report (ESIR) was sent to the Public Information Center (PIC) on March 15, 1999.

H. Physical initiation of works

3.30 ***The deadline for the beginning of construction of the works will be four years from the signing of the contract***, since the projects generally have an execution period of one year.

I. Bidding procedures

3.31 The procurement of goods and related services and the contracting for construction work will be handled according to the Bank procedures set forth in Annex B to the loan contract. International competitive bidding with be mandatory for procurement valued in excess of US$250,000 for goods and related services and US$2 million for construction work contracts. The rationale for these limits is based on the fact that for similar projects in the country foreign bids have been submitted when the amounts were above these figures. Calls for bids involving amounts below these figures will be handled based on the country's legislation, which is compatible with the Bank's procedures. Taking into account that the program will serve rural communities with fewer than 5,000 inhabitants, the amount of the bidding packages is unlikely to exceed the amount set for international competitive bidding. For consulting contracts, the minimum amount above which international competitive bidding will be required is US$200,000. Consulting contracts will be executed pursuant to the procedures set forth in Annex C to the loan contract. Contracts for construction works and services will be grouped as indicated in Annex III-1.

J. Recognition of expenses

3.32 The MVSB has asked the Bank to recognize, as a local counterpart contribution, up to the amount of US$1.27 million in expenses

related to preparing the program. These expenses, which substantially comply with the Bank's requirements in such matters, were incurred after June 8, 1998.

K. Revolving Fund

3.33 ***A revolving fund of 5% of the total funding will be created and will operate pursuant to the Bank's procedures in this area.***

L. Supervision and monitoring of the operation

3.34 Supervision and monitoring of program execution will be done through the Bank's Country Office in Bolivia. The executing agency will submit an initial report to the Bank which is to include the logical framework provided in Annex III-2. It is also to submit annual progress reports. If the execution of the project is not satisfactory, the executing agency is to submit to the Bank, within 60 days of the Bank's recommendations, the corrective measures that it is going to put in place, along with the schedule for their implementation.

3.35 The reports to be prepared by the Country Office on the status of the loan will describe the problems occurring during the execution of the project, and the solutions adopted. A summary of these matters will be included in the Bank's annual portfolio report for Bolivia. With respect to requests for program disbursements, and taking into account previous experience in executing loan 950/SF-BO, the project team recommends that they be handled on an ex ante review basis.

3.36 ***Thirty months from the signing of the contract, or when 50% of program funds have been committed, whichever occurs first, a mid-term review will be conducted to assess program execution.*** This assessment will be carried out based on achievement of the program's performance benchmarks. Special attention will be given to: (i) the degree of implementation of the RIATS; (ii) the process of assessing the projects that are part of the program; and (iii) effectiveness of community development. Should the review indicate a need for adjustments in the execution of the program, the MVSB will have 60 days to submit a plan to correct the problems encountered.

M. Auditing

3.37 The involvement of a management agency as an integral part of the execution process is an innovation in this type of program in Bolivia. In view of this and in order to ensure that the program is executed satisfactorily, it is deemed advisable that the scope of the auditing work for the project include concurrent audits of procurement and disbursement processes. To this end, the firm of independent auditors to be hired by the executing agency, subject to the Bank's nonobjection, will issue regular reports based on its

recurrent reviews. Likewise, it will be responsible for issuing an opinion on the program's financial statements, within 120 days from the close of each fiscal year throughout the execution period. ***The hiring of the auditing firm will be a condition precedent to the first disbursement.***

N. Ex post evaluation

3.38 The borrower will not do an ex post evaluation of the program. However, ***in order to have the data available for a possible evaluation of the program's efficiency and effectiveness in achieving the objectives set, and to take advantage of the lessons learned from the experience, the executing agency will compile the information indicated in the logical framework.*** The most important indicators for this evaluation will be: additional household water and sewer hookups, water use and production, income generated by fees, and operation and maintenance costs for each system.

PROJECT EXECUTION FLOW CHART

UNASBVI promotes the project in the community (emphasis on payment of fees and counterparts)

Community submits request to municipality

Municipality prepares AWP

UNASBVI (Prefecture) consolidates the AWPs and prepares departmental AWP

UNASBVI invites bids and commissions preinvestment (designs)

Design firm prepares preliminary draft of the various levels of service.

Design firm + UNASVI present the costs of the various levels of service to the community, which then selects the level it wants and can afford

Firm prepares detailed design

UNASBVI invites bids and commissions community development

UNASBVI receives the project design and analyzes it from the technical, economic, financial, and environmental standpoints. Recommends that the approved project be included in the EU's program

EU reviews project and forwards it to management firm (MF) for execution

MF invites bids and bids committee awards contract; MF prepares and sends it to EU for signing

Company executes the work under supervision of specialized firm *

Execution of the community development component by the winning bidder:
- Organization of the water committee
- Importance of the payment of fees
- Management of resources
- Training in operation and maintenance
- Sanitary and environmental education

Company completes the work and delivers it to the municipality-community with MF approval

Water committee operates and maintains the system with support from RIATS

*During this phase, the community participates in the supervision of the works through the firm that supervises. It also participates in the construction in that the construction firm hires laborers.

IV. THE BORROWER AND THE EXECUTING AGENCY

A. The borrower and the executing entity

4.1 The borrower will be the Republic of Bolivia, and the execution of the program will be the responsibility of the MVSB through an executing unit to be established in the Office of the Deputy Minister for Basic Services (VMSB).

B. The MVSB

1. Responsibilities and functions

4.2 The MVSB is responsible for setting sector policies, and its functions have been distributed between the VMSB and the Office of the Deputy Minister for Housing and Settlements.

4.3 The main functions of the VMSB are: (i) to promote policies and coordinate actions to increase the coverage of basic services, particularly in rural areas and among low-income sectors of the population; (ii) to propose standards for the provision of water supply, sewerage, solid waste, and gas with the latter two being handled at the municipal level; (iii) to propose policies and standards aimed at protecting the safety and rights of the users of basic services; and (iv) to propose regulatory standards to be enforced by the Water Board.

4.4 To carry out its functions, the VMSB has a Directorate of Basic Sanitation whose Rural basic sanitation and housing unit manages, supervises, and coordinates technical, operational, and administrative activities in its area. The EU reports directly to the Deputy Minister.

4.5 Currently, the executing unit of the PROSABAR program is attached to the VMSB. This unit supervises only the execution of PROSABAR's community development component, since the FIS supervises the works aspect of the program.

2. Financial administration

4.6 Administration of all of the Ministry's financial resources is handled by the Directorate of Administrative Affairs, which reports directly to the Minister.

4.7 For the performance of its duties, this directorate has: a financial unit responsible for administering the budget, accounting, and cashier; a human resources unit responsible for personnel management and development; an administrative unit responsible for general services; and an administrative management

and programming unit responsible for the computer system and administrative organization.

4.8 For the proposed program, it is considered appropriate for the EU to have a section responsible for all the administrative and accounting activities, which would coordinate with the Directorate of Administrative Affairs.

3. Auditing

4.9 The internal audits section, which reports directly to the Minister, provides a support function. It follows the rules and procedures established by the Office of the Comptroller General of the Republic and the Ministry of Finance.

4.10 Its activities are overseen by an auditor, who has the support of a staff member with training in administrative and accounting functions. The focus is on ex post monitoring of budget expenditure, purchases, and handling of funds. The Office of the Comptroller General of the Republic periodically reviews the records relating to execution of the budget.

4.11 ***For the proposed program, it is recommended that its financial statements during the period of execution be certified by a firm of independent public accountants acceptable to the Bank.***

C. Other entities participating in the program

1. The UNASBVIs

4.12 These units function within each of the prefectures and are the entities responsible for the sector at the departmental level. They will play a significant role in the program, which is why the VMSB has provided each of them with a sanitation engineer and a sociologist. Based on the experience of executing PROSABAR, the UNASBVIs are considered to have the capacity to carry out these activities in the proposed program.

2. The municipalities

4.13 The municipalities will receive requests for execution of the respective projects from the communities. Based on their priorities, they will include the projects in their AWP and send all the documentation to the respective UNASBVI to initiate the process of preinvestment studies.

4.14 The municipality is also responsible for ensuring the local contribution to the project, 10% of which is the responsibility of the municipality, and 5% of which is a cash contribution by the community, with a 15% contribution from the community in the form of materials and labor.

4.15 To fulfil these contribution commitments, the municipalities have funds that they receive from national revenue sharing, funds mainly earmarked for investment, since only 15% of the amount received may be used for current expenses.

D. Fees

4.16 The UNASBVIs are carrying out acceptable monitoring of the operation and maintenance of the systems funded under PROSABAR which are in operation. Except in a small number of cases, fees being applied and collected are sufficient to cover operating and maintenance costs.

4.17 ***The prospective loan contract will establish that the borrower and executing agency are to take all the measures necessary to ensure that the fees paid by the users in each new system are sufficient to cover operating and maintenance costs as well as, to the extent possible, depreciation.***

4.18 Taking previous experience into account, the proposed program includes a community development component, and communities are expected to charge fees that will allow operating and maintenance costs to be covered.

V. VIABILITY OF THE PROGRAM

A. Technical viability

5.1 The program is considered feasible and justified from the technical point of view, since it addresses the need to solve problems of public health and environmental pollution caused by the absence or inadequacy of water supply systems and collection, treatment and final disposal of wastewater. The project studies and final designs have been developed in accordance with generally accepted engineering standards and principles. The designs represent least cost, technically viable alternatives.

5.2 Experience acquired by the EU's staff in the MVSB in executing the previous operation in connection with loan 950/SF-BO and experience with PROSABAR in a program similar to the one now being proposed ensures the technical and administrative capacity needed to execute the program. To provide specialized technical staff, the EU will receive support in program execution through the hiring of firms specializing in works management and supervision. There are enterprises in the country qualified to execute the works and supply materials and equipment.

5.3 The timetable for execution has been developed keeping in mind the nature of the works, the periods needed to process bids, and the experience of the MVSB and FIS with the execution of similar works.

5.4 The institutional strengthening and community development components included in the proposed program will contribute to ensuring that the works, once they are completed, will be properly operated and maintained.

B. Institutional viability

5.5 The proposed institutional framework is expected to minimize the risks inherent in the great number and geographic range of the projects to be executed. The program's executing unit will have support from the UNASBVIs and the management agency. The UNASBVIs work at a departmental level, which puts them in constant contact with the communities.

5.6 There is an appropriate distribution of activities among the different entities participating in program execution, with clearly defined obligations and responsibilities. The establishment of an execution format under which the EU is supported by a management agency and concurrent auditing is conducted will allow for adequate control of the use of program resources. In order not to increase the number of permanent staff at the MVSB, the EU will be supported by a management agency during program execution.

C. Financial viability

5.7 Regarding the local contribution, the municipal government of the locality where the works are to be executed is to contribute 10% of the cost, while the community is to participate in the funding with a cash contribution of 5%, and 15% in materials or labor. If the community is not able to contribute 15% in materials or labor, the municipality will assume this part of the local contribution.

5.8 In complying with their investment commitments, the municipalities have revenue-sharing funds to draw on. An analysis was done, based on 1999 budget allocations, of the capacity of each municipality in the sample to meet the local contribution requirements. It should be noted that 1999 allocations for each municipality are consistent with historical experience.

5.9 The analysis shows that the municipalities will have sufficient revenue-sharing funds to meet the commitment entailed. These contributions involve municipal resources in proportions ranging from 1% to (in one case) 53%, with an average of 11%.

5.10 The community is to make a cash contribution of 5%. This represents an extraordinary effort that the community members will have to make, saving for a period of time to cover the expense. In the great majority of communities, the beneficiaries will be called upon to save less that 10% of family income over nine months. It is therefore considered feasible for these communities to be able to contribute 5%. In 19 communities in the project sample, the savings required are over 10%. In these cases, the savings period will be extended, and the UNASBVI in question will have to conduct special follow-up to make sure that the community will have the necessary funds when the time comes.

5.11 The departmental prefectures will use their own funds for project preinvestment, at a cost of US$1.9 million. An examination of the financial statements of these prefectures indicates that most of them have the capacity to cover the cost, though some of them may encounter difficulties.

5.12 To access the ability of the users of the systems in the sample to pay fees high enough to cover operating and maintenance costs, the monthly charge per hookup was calculated and compared with monthly family income.

5.13 The result shows that in the project sample, the fees to be charged to cover operating and maintenance costs are within the users' ability to pay. Hence, the users in these projects are believed to have the ability to cover operating and maintenance costs for their systems.

D. Environmental viability

5.14 In general, the program will have a positive environmental impact by contributing to improving the health of the population and the cleanliness of watercourses, through the collection, treatment, and final disposal of wastewater, and the supply of water. However, construction may involve some localized negative short-term impacts. To control these, the operating regulations include a chapter on the environmental procedures to be followed for approval of projects funded by the program. The program will also include a sanitation education component to maximize the potential positive effects. For these reasons, the program is judged to be viable from an environmental point of view.

E. Socioeconomic viability

5.15 Three types of analysis were used to ascertain the socioeconomic viability of each of the projects in the sample: (i) analysis of alternatives, so that the proposed works involve the least cost for the level of service desired; (ii) cost-benefit analysis; and (iii) analysis of incentives for the efficient use of resources. The benefits and investment, operation, and maintenance costs considered in the analysis were incremental costs expressed in efficiency prices.

5.16 Cost-efficiency models were developed for the cost-benefit analysis that was done of the 142 projects in the sample presented to the Bank. These models were created based on the cost-benefit evaluation of 41 projects for which all the information needed for doing such an analysis was available. As a result of the evaluation, there are 111 viable projects, of which 29 are marginally acceptable.

1. Cost-benefit analysis

a. Water supply projects

5.17 To assess the cost-efficiency models, projects with household hookups were used. In the universe of projects analyzed, the situation without the project involves families carrying water and boiling it to make it drinkable. The projects seek to supply safe water on a sustainable basis.

5.18 The public works simulation model (SIMOP) developed by the Bank was used for the cost-benefit analysis of the water supply projects that make up the database. The economic benefits taken into consideration were: (i) saving of resources, including the time spent carrying water, which averages US$3/cubic meter; and (ii) increased consumption of safe water valued according to the beneficiaries' demand curve.

5.19 Projection of demand was based on growth statistics for the population of the community, which was assumed to be equal to that of the community to be served by the project. The per capita base for purposes of the analysis was taken from an econometric demand model developed for this program, with an average of 65 liters/person/day. In addition, this model was used to estimate the elasticity of demand at the price, which turned out to be -0.67.

5.20 Of the 116 water projects available for analysis, a subsample of 30 was subjected to cost-benefit analysis, on the basis of which simplified parameters were developed to analyze the rest of the projects. The cut-off values of these parameters, which are a function of the cost of carrying water, are:

Cost of carrying (US$/m3)	Maximum cost per connection (US$)	
	Gravity	Pumping
1	188	157
2	416	348
3	661	553
4	919	770

5.21 In cases where there was no information on the cost of carrying water, cut-off values of US$706 and US$591 were used for gravity-fed and pumping projects, respectively.

5.22 This analysis showed that 86 projects are viable, of which 24 are marginally viable, while 30 are not viable. Given the probability of error, it has been recommended that a simplified cost-benefit analysis of the marginally viable projects be conducted, before issuing calls for bids, to confirm their viability.

b. Sanitation projects

5.23 To determine the cost-efficiency models, a cost-benefit analysis of projects with sanitation networks was done. In these cases, the situation without the project involved either cesspool systems that frequently reach capacity and discharge liquids from sewage, putting the health of the inhabitants - particularly children - at risk, or wastewater disposal into the public roadway or into rain runoff ditches which most of the time only contain wastewater. These problems lead to less water consumption and diminished well-being in the population, due to health and environmental effects.

5.24 The benefits of the projects included in the database used for assessing the model were calculated by measuring the cost savings or the increase in well-being evaluated in terms of willingness to

pay (WTP) for the service. To determine the WTP, a contingent valuation method was used, with a referendum-type response.

5.25 In order to facilitate evaluation of the program's projects, a transference of benefits was carried out, using an econometric model of the WTP developed in another program for populations of a similar size in similar socioeconomic conditions. This model presents the WTP as a function of socioeconomic variables such as family income and level of satisfaction with the current system of wastewater disposal. For application of the model to the projects in the proposed program, independent variables were identified through a survey of the beneficiary population.

5.26 Only the cost of networks and collectors were included for purposes of the cost-benefit analysis. Costs of the treatment plant were excluded, since it was evaluated using the least-cost method for a given required level of effluent quality. Benefits of the treatment systems were not evaluated, since the costs are very low (less than US$100,000, or less than 10% of the total cost), and the cost of estimating the benefits are high (the analysis would not be efficient).

5.27 Demand projections were based on the rate of growth of the population of the municipality, which was calculated using information from the last two censuses (1976 and 1992). The average family WTP for the projects analyzed ranges from US$4 and US$6.50 per month.

5.28 Of the 26 sanitation projects made available for analysis, a subsample of 11 projects was submitted to cost-benefit analysis, on the basis of which simplified parameters were developed to analyze the rest of the program's projects. The cut-off values of the parameters as a function of the median income of the population are as follows:

Average family income (B$/month)	Maximum cost per connection (US$)
700	383
900	514
1,100	650
1,300	791

5.29 Where information on family income is not available, the cut-off value used is US$545 per connection.

5.30 This analysis showed that 20 projects are viable, of which five are marginally viable, while six are not viable. Given the probability

of error, it has been recommended that a simplified cost-benefit analysis of the marginally viable projects be conducted, before issuing calls for bids, to confirm their viability.

2. Analysis of the projects during the program

5.31 The projects will be evaluated by the UNASBVIs, ensuring that the least-cost alternatives are being executed, and making sure that the costs per connection in the systems do not exceed the cut-off values. Projects whose costs are within roughly 15% of the cut-off value will be sent to the EU, which will do a simplified cost-benefit analysis. For water supply projects, the SIMOP will be used, based on the information in the project's baseline. For sewerage projects, the model developed during the analysis will be used, based on median income data contained in the baseline.

3. Incentive for efficient use of resources

5.32 Systems with more than 50 connections that receive funding through this program will all have individual metering. Systems with fewer connections (communities of under 350) will have flow controls in the service connections to ensure that none of the households connected uses more than the amount allocated per connection. This structure will provide an incentive for the rational use of water.

4. Sensitivity analysis

5.33 An analysis was conducted of sensitivity to the costs of the investment and the benefits. In this analysis, the probability of projects' viability was estimated. To do this, the probability distribution of the internal rate of return as a function of the change in the percentage of the cost of investment was determined, which is a random variable that has a significant influence on the viability of projects.

5.34 The probability distribution for the deviation between the real value of the work and that of the basic project was determined based on information from the FIS and PROSABAR programs (loan 950/SF-BO). This deviation was calculated as the percentage of the cost of the work over the budgeted cost.

5.35 The probability that the projects approved from the sample will be nonviable is 30% for projects with EIRRs of 14%, and 60% for projects with EIRRs between 12% and 13%. This is due to the high cost increase in the projects being funded under earlier programs. However, taking into account that for purposes of economic assessment, 10% was added to the costs included in the analysis for contingencies, the results are conservative.

F. Social equity and poverty reduction

5.36 This operation qualifies as a social equity enhancing project, as described in the indicative targets mandated by the Bank's Eighth Replenishment (document AB-1704). Furthermore, this operation qualifies as a poverty-targeted investment (PTI). The justification for the PTI classification is that the income of 75% of the beneficiaries in the sample falls below the low-income level for Bolivia according to the Bank's parameters. The project does not specify explicit performance indicators to measure poverty reduction and social equity enhancement. The borrower will not be using the 10 percentage points in additional financing to which it would be entitled.

G. Risks of the program

5.37 The main risks of the program are:

a. Operation of the institutional framework. Taking into account the many stakeholders involved in the execution of the program, there is a risk of delays in execution. However, this risk would be minimized by the MVSB's experience in executing a similar program (PROSABAR). In addition, it is anticipated that part of that program's staff will be incorporated into the program's executing unit, which will be supported by the management agency. Likewise, the UNASBVIs will be augmented by the hiring of technical staff for the execution of the program.

b. Fees, operation and maintenance. There is a risk that once the works are completed, they will not be properly maintained due to a lack of funds generated by fees, and/or from insufficient technical capacity for large-scale maintenance. Experience in the execution of the PROSABAR project suggests that, with the community development component, there is a lower risk that the communities will fail to pay the fees; thus, there would be resources for maintenance. In terms of technical capacity, the MVSB is introducing the Sanitation Information and Technical Assistance Network (RIATS) at the municipal level to support communities in the operation of the systems and large-scale maintenance. Municipalities must belong to the RIATS to be eligible for the program.

BASIC SANITATION PROGRAM FOR SMALL COMMUNITIES
LOGICAL FRAMEWORK OF THE PROGRAM

RRATIVE SUMMARY	VERIFIABLE BENCHMARKS	MEANS OF VERIFICATION	ASSUMPTIONS
ties improve their human dices		Human development reports.	
ties increase coverage of gh-quality water and sanitation framework of the RIATS	10% increase in water supply coverage 5% increase in sanitation coverage	Progress reports, evaluation, and conclusion of the program	1. Incomes of rural inhabitants im 2. Unemployment is reduced 3. Supply and quality of rural hou improve 4. Infant mortality/morbidity rates 5. Environment is preserved
es have basic sanitation nd these are utilized effectively	1. a. 300,000 individuals benefit from 850 water supply systems between 1999 and 2004 b. 150,000 individuals benefit from 150 sewerage and latrine systems between 1999 and 2004 c. Waterborne diseases in project communities diminish by 10%.	1. Project report 2. Contracts for execution of works, community development, and institutional strengthening 3. Progress sheet for works and community development 4. Documents of provisional and final acceptance of works 5. Certification of completion of the community development and institutional strengthening components 6. Social forms and baseline data 7. Follow-up and evaluation system (management information system, studies evaluating processes and impacts) 8. Periodic progress reports on the program 9. Health Ministry reports	1. The communities accept and p in the project 2. The municipalities give priority and activities in the water supp sanitation sector 3. The prefectures back the institu development of the UNASBVIs complying with interagency ag with the program 4. The institutions involved in pro implementation comply with th interagency agreements 5. The institutional and legal fram enables program execution

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RRATIVE SUMMARY	VERIFIABLE BENCHMARKS	MEANS OF VERIFICATION	ASSUMPTIONS
icipate in the project cycle and eir sanitation habits	2. a. 850 water committees are up and running, 1999-2004 b. At least one woman on each water committee formed between 1999 and 2004 c. 1,900 water and sewerage system operators (1,700 water, 200 sewerage) trained from 1999 to 2004 d. 1,250 water supply projects and 160 sewerage projects prepared, of which 850 water and 150 sewerage projects approved and built in the period of 1999-2004 e. 1,000 communities benefit from community development f. 100% of communities pay fees for water and sanitation services		
ies strengthened and trained, art of the RIATS	3. a. 200 municipalities are part of the sanitation network and have at least one technician responsible for providing technical assistance to communities in the respective municipality in the 1999-2004 period b. 200 municipal technical staff trained in basic sanitation in 1999-2004 period. c. 200 municipal technical staff paid with municipal funds at the conclusion of the program		

RRATIVE SUMMARY	VERIFIABLE BENCHMARKS	MEANS OF VERIFICATION	ASSUMPTIONS
ed and trained, UNASBVIs the RIATS	4. a. Nine prefectures include the UNASBVIs in their organizational structure pursuant to interagency agreements under the program b. 40 technical staff from UNASBVIs trained in the 1999-2004 period c. Nine departmental institutional development programs implemented, 1999-2004		
gency agreements with s (UNASBVIs), municipalities, entities for execution of the SBVIs, municipalities, and other in methods of intervention ojects with participation of ies and communities and monitor general activities gram eriodic progress reports on the or national authorities and for rengthening of sector by the institutional framework the MVSB and the basic law llow-up and evaluation of the odate, and validate the and methods of intervention e program	1. The overall budget of the activities for the achievement of output (1) is US$47,946,000	1. Program's operating regulations 2. Annual operating plans 3. Financial disbursements 4. Balance sheets 5. Audits	1. The rural communities value w sanitation services as a neces willing to pay for them

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RRATIVE SUMMARY	VERIFIABLE BENCHMARKS	MEANS OF VERIFICATION	ASSUMPTIONS
in executing the public program equests to municipalities in the the participatory planning urces of water and carry out nts d choose leaders to promote *d fill management posts,* greater participation by women r and sanitation committees in preparation and supervision preinvestment chnical options and levels of *nd determine counterpart* in execution and monitoring of on and community development in execution of the sanitation module maintain, and administer	2. The overall budget of activities to achieve output (2) is US$4,564,000.		

RRATIVE SUMMARY	VERIFIABLE BENCHMARKS	MEANS OF VERIFICATION	ASSUMPTIONS
gram participation agreements ternal municipal technical unit te in training municipal officials cal and management issues and systematize demand by munities manage, and cofinance ntation of rural basic sanitation pursuant to established es technical assistance for n of projects and for ntation of the RIATS te in project evaluation ls for bids and participate in ng for construction of works mmunity development te in coordination, monitoring ervision in execution of ity development and works tion activities nt RIATS (registry of works, ality control, monitoring of and assistance for services)	3. The overall budget for activities to achieve output (3) is US$1,100,000		

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RRATIVE SUMMARY	VERIFIABLE BENCHMARKS	MEANS OF VERIFICATION	ASSUMPTIONS
gram participation agreements alified technical teams te in training technical teams in project management, and assistance institutional development s (at the departmental and local the context of the RIATS technical assistance to lities activities and investments at rtmental level ecuting units in project on GOs, communities, and OTBs ots community-based tions) in project execution mmunity development g units ject supervisors program monitoring and n program at departmental anagement, processes, and	4. The overall budget for activities to achieve output (4) is US$2,390,000		

BID SCHEDULE

BASIC SANITATION PROGRAM FOR SMALL MUNICIPALITIES						
BO-0175						
ANTICIPATED BIDS (1)						
ITEM	PACK-AGE	DIRECT COST (US$000)	FUNDING		METHOD (1)	DATE OF PUBLICATION (sem/yr) (2)
			IDB	LOCAL		
A. SAMPLE PROJECTS						
WATER SUPPLY AND SANITATION WORKS						
1. Cochabamba	6	1,910	70	30	LCB	I/2000
2. Chuquisaca	8	1,998	70	30	LCB	I/2000
3. La Paz	5	595	70	30	LCB	I/2000
4. Oruro	4	638	70	30	LCB	I/2000
5. Potosí	2	292	70	30	LCB	I/2000
6. Tarija	1	20	70	30	LCB	I/2000
COMMUNITY DEVELOPMENT CONSULTING SERVICES						
1. Cochabamba	6	200	90	10	LCB	I/2000
2. Chuquisaca	8	240	90	10	LCB	I/2000
3. La Paz	5	150	90	10	LCB	I/2000
4. Oruro	4	100	90	10	LCB	I/2000
5. Potosí	2	90	90	10	LCB	I/2000
6. Tarija	1	5	90	10	LCB	I/2000
OTHER CONSULTING SERVICES						
1. Program management agency	1	2,190	100	-	ICB	I/2000
2. Works supervision firms	100	1,290	100	-	LCB	I/00-1/03
3. Operational and financial auditing firm	1	1,100	100	-	ICB	I/2000
B. OTHER PROJECTS (TO BE DETERMINED)						
WATER SUPPLY & SANITATION WORKS	110	31,863	70	30	LCB/ICB	I/01-I/03
COMMUNITY DEVELOPMENT CONSULTING SERV.	110	3,715	90	10	LCB/ICB	I/01-II/02
PURCHASE OF EQUIPMENT FOR THE RIATS	5	2,000	90	10	ICB	1/2000

ICB: International competitive bidding
LCB: Local competitive bidding
(1) International competitive bidding will be mandatory for packages involving amounts in excess of US$2 million for works and US$250,000 for goods and related services
(2) Estimated date

PROPOSED RESOLUTION

BOLIVIA. LOAN /SF-BO TO THE REPUBLIC OF BOLIVIA BASIC SANITATION PROGRAM FOR SMALL MUNICIPALITIES

The Board of Executive Directors

Resolves:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Republic de Bolivia, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a basic sanitation program for small municipalities. Such financing shall be for the amount of up to US$40.000.000, or its equivalent in other currencies, except that of Bolivia, which are part of the Fund for Special Operations resources of the Bank, and will be subject to the "Special Contractual Conditions" and the "Financial Terms and Conditions" of the Executive Summary of the Loan Proposal.