

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

## **EL SALVADOR**

### **PROGRAM FOR ENVIRONMENTAL POLLUTION CONTROL IN CRITICAL AREAS**

**(ES-0074)**

### **LOAN PROPOSAL**

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## BASIC SOCIOECONOMIC DATA

The basic socioeconomic data for El Salvador are available on the Internet at the following address:

**English:**

[Http://www.iadb.org/int/sta/english/brptnet/brptframe\\_eng.htm](http://www.iadb.org/int/sta/english/brptnet/brptframe_eng.htm)

**Spanish:**

[Http://www.iadb.org/int/sta/spanish/brptnet/brptframe\\_eng.htm](http://www.iadb.org/int/sta/spanish/brptnet/brptframe_eng.htm)

### INFORMATION AVAILABLE IN THE TECHNICAL FILES

1. Summary of costs by component
2. Operating Regulations for the solid waste management investment resources
3. Design and feasibility study for the program for environmental pollution control in critical areas (Euroconsult/Eurolatina), which includes the following:
  - Diagnosis of the present situation of municipal solid waste
  - Diagnosis of the present status of air pollution
  - Diagnosis of the present status of water pollution
  - Diagnosis of the status of hospital waste
  - Study on alternatives for program preparation
  - Diagnosis of institutional and organizational factors
  - Survey and study on willingness to pay for municipal solid waste management
  - Environmental report on the program
  - Study on the preselection of sites
  - Final report and feasibility designs for each component, including technical, financial, institutional, economic and environmental analyses
4. Indicative terms of reference for the studies and activities under the subcomponent for the regulatory framework for air quality
5. Indicative terms of reference for the studies and activities under the subcomponent for the regulatory framework for water quality
6. Indicative terms of reference for the studies and activities under the component for the regulatory framework for solid waste management and design of the hospital waste management program
7. Indicative terms of reference for the selection of sites for final disposal of solid waste
8. Indicative terms of reference for the final design of the sanitary landfills
9. Indicative terms of reference for the closure of existing municipal dumps or mitigation of their impact
10. Procurement procedures

Note: All of these materials were used in project preparation and are relevant for its execution.

## ABBREVIATIONS

AMSS	Area Metropolitana de San Salvador [San Salvador metropolitan area]
ANDA	Administración Nacional de Acueductos y Alcantarillados [National Water Supply and Sewerage Administration]
CNDS	Consejo Nacional de Desarrollo Sostenible [National Sustainable Development Council]
COMURES	Corporación de Municipalidades de la República de El Salvador [El Salvador Association of Municipalities]
CONACYT	Consejo Nacional de Ciencia y Tecnología [National Science and Technology Board]
FISDL	Fondo de Inversión Social de Desarrollo Local [Social Investment Fund for Local Development]
FODES	Fondo para el Desarrollo Económico y Social [Economic and Social Development Fund]
GOES	Government of El Salvador
GTZ	German technical cooperation agency
ICDF	International Cooperation and Development Fund
ISDEM	Instituto Salvadoreño de Desarrollo Municipal [Salvadorean Municipal Development Institute]
KfW	Kreditanstalt Für Wiederaufbau
MAG	Ministerio de Agricultura y Ganadería [Ministry of Agriculture]
MARN	Ministerio de Medio Ambiente y Recursos Naturales [Ministry of the Environment and Natural Resources]
MIF	Multilateral Investment Fund
MOP	Ministerio de Obras Públicas [Ministry of Public Works]
MSPAS	Ministerio de Salud Pública y Asistencia Social [Ministry of Public Health and Social Welfare]
NGO	nongovernmental organization
OC	Ordinary Capital
PAES	Programa Ambiental de El Salvador [El Salvador Environment Program]
PAHO	Pan American Health Organization
PCU	Program Coordination Unit
SEMA	Secretaría de Medio Ambiente [Department of the Environment]
SNMH	Sistema Nacional de Meteorología y Hidrología [National Meteorology and Hydrology System]
TC	Technical-cooperation project
UA	Unidad Ambiental [Environment Unit]
USAID	United States Agency for International Development

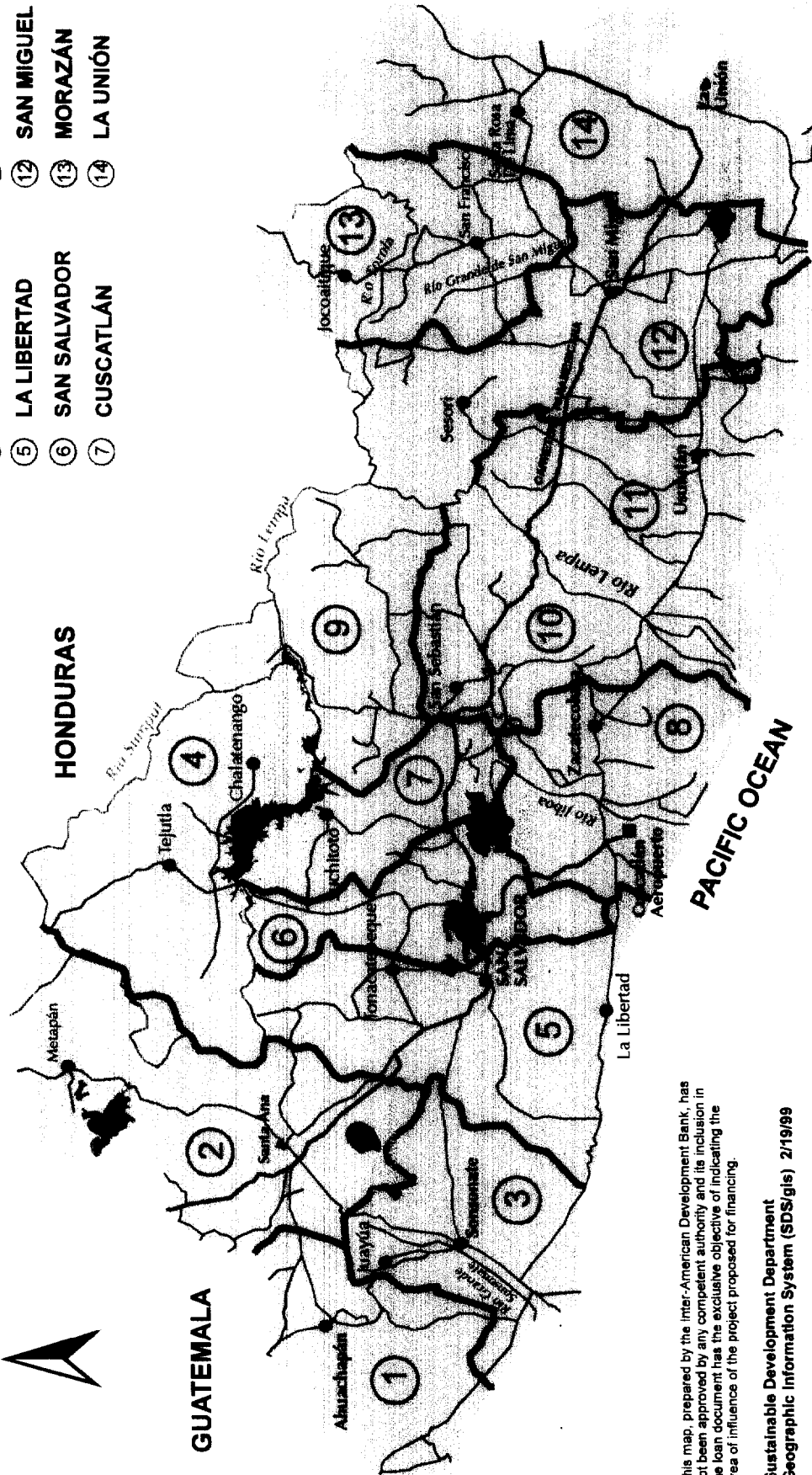
# EL SALVADOR

# PROGRAM FOR ENVIRONMENTAL POLLUTION CONTROL IN CRITICAL AREAS

**ES-0074**

## DEPARTMENTS

- |   |              |   |             |
|---|--------------|---|-------------|
| ① | AHUACHAPÁN   | ⑧ | LA PAZ      |
| ② | SANTA ANA    | ⑨ | CABAÑAS     |
| ③ | SONSONATE    | ⑩ | SAN VICENTE |
| ④ | CHALATENANGO | ⑪ | USulután    |
| ⑤ | LA LIBERTAD  | ⑫ | SAN MIGUEL  |
| ⑥ | SAN SALVADOR | ⑬ | MORAZÁN     |
| ⑦ | CUSCATLÁN    | ⑭ | LA UNIÓN    |



This map, prepared by the Inter-American Development Bank, has not been approved by any competent authority and its inclusion in the loan document has the exclusive objective of indicating the area of influence of the project proposed for financing.

**Sustainable Development Department  
Geographic Information System (SDS/gis) 2/19/99**



## EL SALVADOR

### IDB LOAN..

APPROVED AS OF AUGUST 31, 1999

	US\$ Thousand	Percent
<b>TOTAL APPROVED</b>	<b>2,492,169</b>	
DISBURSED	1,881,943	75.5%
UNDISBURSED BALANCE	610,226	24.5%
CANCELLATIONS	180,057	7.2%
PRINCIPAL COLLECTED	599,924	24.1%
<b>APPROVED BY FUND</b>		
ORDINARY CAPITAL	1,610,555	64.6%
FUND FOR SPECIAL OPERATIONS	749,538	30.1%
OTHER FUNDS	130,826	5.2%
<b>OUTSTANDING DEBT BALANCE</b>	<b>1,282,019</b>	
ORDINARY CAPITAL	680,591	53.1%
FUND FOR SPECIAL OPERATIONS	588,298	45.9%
OTHER FUNDS	13,130	1.0%
<b>APPROVED BY SECTOR</b>		
AGRICULTURE AND FISHERY	176,168	7.1%
INDUSTRY, TOURISM, SCIENCE TECHNOLOGY	135,824	5.5%
ENERGY	463,965	18.6%
TRANSPORTATION AND COMMUNICATIONS	434,030	17.4%
EDUCATION	207,137	8.3%
HEALTH AND SANITATION	347,859	14.0%
ENVIRONMENT	30,000	1.2%
URBAN DEVELOPMENT	31,208	1.3%
SOCIAL INVESTMENT AND MICROENTERPRISE	206,509	8.3%
REFORM PUBLIC SECTOR MODERNIZATION	261,966	10.5%
EXPORT FINANCING	79,823	3.2%
PREINVESTMENT AND OTHER	117,681	4.7%

\* Net of cancellations with monetary adjustments and export financing loan collections





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# EL SALVADOR

## TENTATIVE LENDING PROGRAM

			US\$ Millions
<b>1999</b>			
ES0115	LOAN CT: FINANCIAL SECTOR SUPPORT PROGR.	3.8	APPROVED
ES0113	TC: CLOSING ACCOUNT MODERNIZ. & STRENGTH	4.0	
ES0093	LEGISLATIVE BRANCH MODERNIZATION	5.0	
ES0074	DECONTAMINATION OF <b>CRITICAL AREAS</b>	29.8	
	<b>TOTAL A</b>	42.6	
	<b>TOTAL 1999</b>	42.6	
<b>2000</b>			
ES0114	TECHNOLOGICAL KNOWLEDGE DEVELOPMENT	6.0	
ES0125	SUPPORT INSTITUTE OF SAVINGS INSURANCE	100.0	
ES0120	LOCAL DEVELOPMENT PROGRAM II	10.0	
ES0119	AGRICULTURAL MODERNIZATION PROGRAM	10.0	
ES0117	COSTAL CONSERVATION AND MANAGEMENT	30.0	
ES0087	HOUSING PROGRAM	80.0	
ES0116	PEACEFUL COEXISTENCE AND CIVIL SECURITY	30.0	
ES0118	SAN SALVADOR MUNICIPAL. MODERNIZATION	6.0	
	<b>TOTAL A</b>	272.0	
	<b>TOTAL 2000</b>	272.0	



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## EL SALVADOR

### STATUS OF LOANS IN EXECUTION AS AUGUST 31,1999

(Amounts in US\$ thousands)

APPROVAL PERIOD	NUMBER OF PROJECTS	AMOUNT APPROVED	AMOUNT DISBURSED	% DISBURSED
Before 1993	5	134,408	109,914	81.78%
1993 - 1994	2	440,000	225,671	51.29%
1995 - 1996	4	109,210	49,180	45.03%
1997 - 1998	6	312,605	3,672	1.17%
1999	1	3,802	0	0.00%
<b>TOTAL</b>	<b>18</b>	<b>\$1,000,025</b>	<b>\$388,436</b>	<b>38.84%</b>

\* Net of Cancellations . Excluding export financing loans.

# PROGRAM FOR ENVIRONMENTAL POLLUTION CONTROL IN CRITICAL AREAS

## (ES-0074)

### EXECUTIVE SUMMARY

<b>Borrower:</b>	The Republic of El Salvador	
<b>Executing agency:</b>	Ministry of the Environment and Natural Resources (MARN) (see paragraphs 1.14, 1.15 and 3.1).	
<b>Amount and source:</b>	IDB (OC):	US\$29,847,000
	Local counterpart:	US\$ 8,645,000 <sup>1</sup>
	Total:	US\$38,492,000
<b>Financial terms and conditions:</b>	Amortization period:	20 years
	Disbursement period:	5 years
	Interest rate:	variable
	Inspection and supervision:	1% of the loan amount
	Credit fee:	0.75%
	Currency:	US\$ (Single Currency Facility)
<b>Objectives:</b>	<p>The general objective of the program is to help set the stage for implementing environmental pollution control in the country by establishing and consolidating systems for environmental management in three critical areas: air pollution, water pollution and pollution caused by solid waste. Its specific objectives are: (i) to ensure that for each of these critical areas operational information and monitoring systems are in place, regulations and quality standards have been established, MARN's institutional capacity has been strengthened, environmental permit and audit systems are functioning, and specific strategies and plans for environmental pollution control have been developed; and (ii) to launch investments for proper disposal of municipal solid waste.</p>	
<b>Description:</b>	<p>The program comprises two major components: (i) support for an environmental regulatory framework that will provide mechanisms for implementing the Environment Act in the critical areas targeted by the program; and (ii) support for integrated management of municipal solid waste through garbage collection and final disposal in small and medium-sized municipalities. A small coordination unit will be set up within MARN to coordinate the two components and will receive specialized advisory support, particularly for the technical, economic, and environmental aspects of the two components.</p>	

<sup>1</sup> The total amount of the local counterpart may include up to US\$7.7 million from the International Cooperation and Development Fund (ICDF) (see paragraphs 2.30 and 2.31).

## **1. Component 1. Support for the environmental regulatory framework (US\$8.7 million)**

This component focuses on strengthening the capacity of MARN to carry out its functions as environmental authority. It can be broken down by critical area into the following subcomponents:

### **a. Regulatory framework for air quality**

This subcomponent will serve as a basis for air pollution control by developing monitoring capability, drawing up standards and formulating investment strategies and plans. Specific activities include: establishment of the air quality monitoring system; studies to evaluate point and nonpoint sources of air pollution; a description of urban meteorology; epidemiological and economic studies; development of air quality standards; design and implementation of the permit and audit system; specialized training in the country; organization and dissemination of information and campaigns to heighten awareness. Lastly, a strategy to upgrade air quality will be formulated and specific proposals framed for investment or intervention in the short and medium terms.

### **b. Regulatory framework for water quality**

This subcomponent will chart a course for abatement of water pollution nationwide and protection of the country's major aquifers. As with air quality, the activities to be performed include: information and monitoring; diagnostic and other studies; development of quality standards; instruction and specialized training; and the formulation of investment strategies and plans. The strategy for water pollution abatement will be based on comprehensive studies that evaluate alternative water quality goals to be reached in the short, medium and long terms for the bodies of water affected, identifying the best solutions from the environmental, financial and economic standpoints. Consultations and agreements between the government and civil society organizations will be sponsored with a view to establishing a time frame for reducing water pollution.

### **c. Regulatory framework for hospital, municipal, toxic and hazardous waste**

Under this subcomponent, technical standards will be formulated for final disposal of hazardous municipal solid waste. In addition, diagnostic and other studies and surveys of toxic and hazardous waste will be conducted and a strategy will be devised to address the situation. Promotional and awareness-raising activities will also be carried out.

The subcomponent calls for MARN to sign an agreement with the Ministry of Public Health and Social Welfare (MSPAS) to implement a program for the management and safe disposal of hospital waste from hospitals and health centers preferably in metropolitan San Salvador, Santa Ana and the departments of San Miguel and La Unión.

## **2. Component 2. Support for municipal solid waste management (US\$18.6 million)**

The purpose of this component is to resolve the problems of collection and final disposal of solid waste in small and medium-sized municipalities through investments and programs that promote education and increased public awareness, community acceptance and financial sustainability of garbage collection and disposal services. A comprehensive approach is taken to solid waste management, with the promotion of recycling and composting activities while limiting the production of waste in general wherever feasible. To support the municipalities, investment resources will be provided on the basis of demand, in response to applications containing specific action plans and commitments for performance during the execution period.

Execution of the municipal level activities, in terms of technical assistance as well as investment, is managed by the municipalities themselves with support from NGOs or private firms. For the purposes of monitoring and supervision, MARN receives support from the Fund for Social Investment and Local Development (FISDL), the agency designated by the government as lead institution for the promotion of decentralization and municipal development.

In an initial phase, the program will focus on the departments of San Miguel and La Unión in the eastern part of the country. Activities will begin in the municipalities of San Miguel, La Unión and Santa Rosa de Lima, which have already asked to participate in this program and have had feasibility studies prepared. If feasible, nearby municipalities such as Usulután may also participate, if that would maximize the advantages of regional management. At the government's request, municipalities in the western region have been included, primarily Santa Ana, Sonsonate and Ahuachapán, including communities in their metropolitan areas. Master plans for municipal development of both Santa Ana and Sonsonate, financed by the Bank, are now ready and it has been decided that the management models will be similar to those for San Miguel.

This component will consist of two activities: (i) financing investments in waste collection and disposal; and (ii) technical assistance, to support the municipalities in training, business organization, promotion, final design studies, environmental studies,

community consultations, education campaigns and pilot programs, among other actions.

Depending on the specific plan of action for each municipality, various mechanisms will be used for public and private management of garbage collection and the operation and maintenance of landfills. The program will foster the use of private management wherever feasible, and will take advantage of the successful experience San Miguel has had in utilizing microentrepreneurs for collection services. The investment resources are managed on a recovery basis and are governed by transfer and credit agreements between the municipalities and the Ministry of Finance.

**Environmental and social review:**

Paragraphs 4.3 to 4.8 summarize the environmental and social considerations of the operation. The nature of the proposed program is strictly environmental, inasmuch as its objectives and goals have been designed to begin remedying pollution problems. In the case of investments for municipal solid waste management, environmental and technical standards are being introduced. The Operating Regulations governing the investments establish specific environmental criteria that must be met to ensure that the applications submitted by the municipalities comply with applicable environmental legislation. The Regulations require that the necessary permits be obtained for the investments, which must be consistent with the policies and technical standards issued by MARN and the MSPAS for solid waste management.

**Risks:**

The principal risks entailed by the program are:

- (i) **Social and political acceptance of the environmental regulatory framework.** With this risk in mind, the program will pay particular attention to consultation and consensus-building when formulating and implementing the regulations. There is already a mandate for these measures in the form of the Environment Act, and growing awareness within civil society with respect to environmental issues;
- (ii) **Institutional change.** As the institutional aspects may be changing and dynamic, particularly in the area of municipal support, the program requires a certain degree of flexibility. It is therefore based on a system of contracts that minimize ties to institutional settings, with emphasis on specific products necessary in any institutional context.
- (iii) **The limited capacity of many municipalities to generate income and raise rates** could prove an obstacle to their participation in the program. Such shortcomings are a given, and the program must therefore be framed according

to their possibilities and on the basis of demand. That is why the investment mechanism, with access via applications accompanied by action plans, was chosen. The scaling of the program is conservative and is based on the assumption that the participants will be restricted to municipalities that express interest and undertake to ensure that the operations are financially sustainable.

**Benefits:**

The program will lay the foundation for urban pollution control, which in the case of El Salvador has a high social and economic cost. To a great extent, the incidence of gastrointestinal and respiratory disease in the country is directly associated with air and water pollution. Sources of water are now disappearing due to pollution and overexploitation, and the costs of water treatment are constantly increasing. Potential exports are less competitive in international markets when they are produced in a polluted environment. Open-air solid waste dumps are a source of concern, constituting dangerous infectious foci, and environmental deterioration has conveyed a negative image of the country and tourist attractions there. According to studies conducted by MARN, the economic cost of environmental degradation may be as high as 3%-4% of gross domestic product.

These problems cannot be resolved unless support measures are provided for the proposed environmental regulatory framework. The specific investments to be made under the program will improve garbage collection services and eliminate open-air dumps. This will result in cleaner cities, reducing the pollution caused by solid waste and improving the quality of life for the population.

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

This program is part of an environmental strategy that the Bank and the country agreed upon in 1992. Since that time, the Bank has maintained a strong presence in this area, providing timely support for the activities carried out for environmental management. Natural resource management is covered in the El Salvador environment program (PAES) (loan 886/OC) now in execution. The proposed program for environmental pollution control in critical areas covers urban pollution. A program for the management of coastal resources is currently in preparation.

It should be noted that two MIF operations are being processed as an integral and complementary part of this critical area environmental pollution control program. The first operation (TC-98-11-03-7) promotes changes in manufacturing to achieve cleaner production processes and thus help ensure compliance with the environmental standards to be developed under the program. MARN, through specialized NGOs, will draft plans of action agreed on with the business community to improve or modify production processes to make them cleaner. The second MIF operation now

being prepared (TC-98-09-48-7), entitled "Small Enterprise and Municipal Pilot Project" is designed to support, among other things, microenterprise involvement in such municipal services as street cleaning and the capability of small and medium-sized municipalities in their negotiations with the private sector. The proposed program will make use of this operation to facilitate the provision of technical assistance for microentrepreneurs in solid waste collection and management in the small and medium-sized municipalities that take part in the program.

The environmental support the Bank is providing to El Salvador is consistent with the global strategy of assisting in the country's sustainable development, as specified in the latest country paper approved by the Board of Executive Directors. The proposed program will also promote private management and systems for decentralized municipal execution consonant with the Bank's strategy of supporting modernization of the public sector.

**Poverty-targeting:**

This operation does not qualify as a project that promotes social equity, as described in the key objectives for Bank activity stipulated in the Report on the Eighth General Increase in Resources of the Bank (document AB-1704).

**Procurement of goods and services:**

The Bank's standard procurement procedures will govern the procurement of goods, services and civil works. However, once the executing unit has been sufficiently strengthened and its staff trained, these procedures will be gradually replaced by ex post review of the bidding procedures followed. According to the Bank's standard procedures, international competitive bidding will be required for the purchase of goods in amounts above US\$250,000, for construction contracts in amounts above US\$1 million, and for consulting services, over US\$200,000. For contracts in amounts below those thresholds, the procurement procedures described in the RE2/EN2 technical files will be followed.

**Special contractual conditions of the loan:**

**1. Disbursement for startup of program activities**

It is recommended that once the loan contract becomes effective and the conditions set forth in paragraphs 4.01(a), 4.01(b) and 4.01(e) of the contract have been fulfilled, the Bank disburse US\$300,000 in the loan proceeds to establish the basic structure for implementation of the program components (see paragraph 3.1).



**2. Conditions precedent to the second disbursement of the loan**

Evidence must be submitted that the Bank's standard contractual conditions have been fulfilled, set forth in paragraphs 4.01(c), 4.01(d), and 4.01(f) of the loan contract (see paragraph 3.1).

**3. Conditions precedent to disbursement of the remaining resources of component 1**

Evidence must be submitted that: (a) MARN has created the Program Coordinating Unit and the coordinator has been hired according to the procedures agreed upon with the Bank (see paragraphs 3.1 and 3.2); and (b) the solid waste policy and regulations proposed by the MARN, as agreed upon with the Bank, have been approved (see paragraph 1.19).

In addition, disbursements for the execution of each subcomponent under component 1 will be subject to hiring of the technical staff responsible for the respective subcomponent, pursuant to the procedures agreed upon with the Bank, and submittal of the work plan and terms of reference for the subcomponent (see paragraph 3.3).

Additional evidence must also be submitted to the Bank's satisfaction prior to disbursement of funds for the following component 1 activities: (a) for the hospital waste management subcomponent, entry into force of the agreement between MARN and the MSPAS (see paragraphs 2.14 and 3.3); (b) for the environmental monitoring activities under each of the two subcomponents, entry into force of the agreement between MARN and the corresponding institution responsible for providing these services (see paragraph 3.3).

**4. Conditions precedent to disbursement of the remaining resources of component 2**

Evidence must be submitted that: (a) the PCU has put into effect the Operating Regulations for component 2 investments, in line with the terms and conditions agreed upon with the Bank (see paragraph 3.11), including the agreement between the Ministry of Finance, the municipalities and MARN setting forth the conditions for transfer of the investment resources (paragraphs 3.7 and 3.17); and (b) the agreement with the FISDL concerning its participation in the execution of this component has been signed (paragraphs 1.15, 3.1, 3.5, and 3.6).

**Exceptions to  
Bank policy:**

None

**Recognition of previous expenditures:**

The Bank may recognize expenditures incurred to cover the cost of investments in program designs, studies and activities as part of the local counterpart contribution to the program. Up to the equivalent of US\$500,000 in expenses incurred during the 18-month period prior to the loan approval date will be recognized as part of the local counterpart contribution. This includes program-supported land purchases by municipalities for final disposal of solid waste. (see paragraph 3.34).

## **I. BACKGROUND**

### **A. General context of environmental management in El Salvador**

- 1.1 According to comparative studies of the region, the indicators posted by El Salvador point to the most severe environmental degradation in Central America. In general, they show high rates of deforestation, heavy soil erosion, a high degree of surface and groundwater pollution, soil contamination from toxic solid waste, including hospital waste, and increasingly poor air quality, especially in San Salvador. According to studies by the Ministry of the Environment and Natural Resources (MARN), the economic cost of environmental degradation may be as high as 3%-4% of gross domestic product, considering its impact on public health, losses in productivity, losses in tourism, incremental costs for the production of energy and drinking water, and more. The small surface area of the country and high population density (280 inhabitants per square kilometer) compounds these environmental problems.
- 1.2 Only an estimated 2% of the original forest cover is left in the country. A mere 3% of wastewater is given some type of treatment before being discharged into receiving waters. Furthermore, industrial and agroindustrial establishments discharge their wastewater directly into receiving waters with little control. According to certain estimates, 90% of the surface waters in the country have pollution rates that constitute a high risk for direct human contact and consumption. Air pollution has risen so much in San Salvador that the Ministry of Public Health and Social Welfare (MSPAS) reports that the incidence of respiratory disease now exceeds that of gastrointestinal disease. And lastly, there is no effective, comprehensive management of solid waste in the municipalities of the country, with all the garbage being disposed of in open-air dumps with no control whatsoever. Toxic, hazardous and hospital waste is dumped along with municipal waste without any control for its treatment.
- 1.3 The environmental degradation taking place in El Salvador is the result of a cumulative process dating back many years. It is attributable to factors associated with the high poverty rate affecting a large part of the population, the government's lack of fiscal resources, the low level of education and environmental awareness among the public, the lack of appropriate environmental institutions and policies, and the distortion of prices for natural resources that do not take into account the economic value of environmental services and damage. Accordingly, resolving these problems will depend to a great extent on laying a sound, stable foundation for promoting economic growth, increasing the income of the population and reducing poverty, while improving the level of education and heightening environmental awareness. It will also require credible, practicable institutional and legal environmental instruments tailored to the country's level of economic development.

- 1.4 Environmental management in El Salvador at the central government level was formally instituted in 1992 with the creation of the National Environment Council and its Department of the Environment (SEMA). Although the country has been slow in implementing environmental management, major steps have been taken to date and there is a promising framework to promote it. First of all, the macroeconomic foundations have been laid, and the signs of stability and openness have generated a favorable climate for economic growth. Second, environmental awareness in the country has greatly improved since 1992, as demonstrated in a range of areas, from the environmental education incorporated into the formal education curriculum to the organization of grassroots groups and local governments concerned about the condition of natural resources in their communities. Lastly, with the establishment of MARN in 1997 (which replaced SEMA) and passage of the Environment Act in 1998, the current government took a significant step toward laying the institutional foundations for an environmental management plan consistent with the sustainable development objectives established as a goal for the country. The Government of El Salvador (GOES) also created a National Council for Sustainable Development (CNDS), which reports to the Office of the Vice President, which plays a role in coordination and consensus-building for sustainable development in general.
- 1.5 Through these measures, the basic institutional and legal foundations have been laid. However, the entire regulatory structure remains to be built to make environmental management operational. Information and monitoring capacity are currently lacking and the technical standards and regulations are not yet in place to guide strategy formulation and the development of concrete plans of action for pollution prevention and control. Accordingly, the GOES has requested support from the Bank for a program to help resolve the problems of urban air and water pollution and solid waste management.

**B. Basic purpose of the program**

- 1.6 The program is designed to support the country in its efforts to: (i) develop the environmental regulatory framework in the areas of air pollution, water pollution and solid waste management (the three critical areas under the program); (ii) formulate investment plans as part of the air and water pollution control strategies, with a view to financing these investments in subsequent operations; and (iii) promote integrated management of municipal solid waste and carry out specific activities related to garbage collection and final disposal in the small and medium-sized municipalities that request such support.
- 1.7 **Support for the environmental regulatory framework** will focus primarily on laying the institutional and legal groundwork, generating the necessary information and devising incentive systems for effective implementation of pollution control activities by both the public and private sectors. MARN will then be able to operate

effectively as the environmental authority and regulatory agency in charge of promoting and coordinating environmental management in the country.

- 1.8 In this first phase, the country is expected to achieve an air and water quality monitoring and information network, a strengthened technical capacity for MARN, approved regulations, technical standards and action strategies with investment plans assigned priority according to economic, environmental, technical and financial criteria. In addition, under the program the country will establish policies, technical standards and regulations to govern measures for control of solid waste, including municipal, toxic and hazardous waste.
- 1.9 **As part of the physical investments** for environmental pollution control, the proposed program will launch integrated solutions to the problems of municipal solid waste collection and final disposal, based on the national policy framework and the standards and regulations promoted concurrently. Specific measures and investments are called for in this connection at the level of small and medium-sized municipalities. There is generally great concern at both the municipal and national levels about final disposal of solid waste and its adverse impact on public health and the environment. The Environment Act and its regulations require the municipalities to take appropriate administrative measures, for which assistance is needed. Photographs of the problem of pollution due to solid waste in two of the municipalities to participate in the program are shown on page 8.
- 1.10 Flexible support for solid waste management will be provided so that it can be adjusted to the particular needs and features of each municipality. There are obvious weaknesses in many aspects of municipal government, as well as in the supporting central government structures. The program takes into account this reality and promotes a gradual process of improvement. To achieve the flexibility required, investment resources will be made available to qualifying small and medium-sized municipalities that submit an application and agree to a phased-in action plan.
- 1.11 Each action plan will describe the following elements of the supporting process: (i) raising awareness and improving education among the local population; (ii) training; (iii) strengthening the municipality in its administrative, financial and legal capacity; and (iv) promoting private-sector participation and support for municipal governments in garbage collection services and concession contract management. The municipal governments will be given support to launch their specific collection programs, promoting business management in the provision of services and favoring private and microenterprise management wherever feasible. For final disposal, efforts will be made to ensure that these solutions are cost-effective and help achieve regional environmental efficiency, meeting the technical and environmental standards to be drawn up by MARN and the MSPAS. As part of the comprehensive management approach, the program includes measures to

minimize the amount of waste at the source and carry out pilot projects for recycling and composting.

**C. General institutional framework for program execution**

- 1.12 Government authorities have confirmed the importance and priority of these issues for the country and favor an operation that will make maximum use of existing institutions and avoid the creation of new agencies that would bloat the State apparatus. The country already has a basic institutional framework for carrying out the program, as well as such legal instruments as the Environment Act and the Health Code which will allow for startup of activities. The program will therefore promote modernization, adjustment and/or strengthening of these institutional and legal instruments.
- 1.13 The program adheres to the New Alliance approach, which establishes the new government's institutional goals and responsibilities and defines four major spheres of action: alliance for work, alliance for security, alliance for partnership, and alliance for the future. With that in mind, an agreement has been reached with the government whereby the leading role in activities supporting the regulatory environmental framework and pollution control will be assigned to MARN. Coordination will be established, where necessary, with other agencies, such as the Social Investment Fund for Local Development (FISDL), the MSPAS, the National Water Supply and Sewerage Administration (ANDA). In general, the recently created Secretariat of the Presidency supervises and supports institutions in order to attain the strategic goals set by the New Alliance.
- 1.14 MARN was established in June 1997 in the context of modernization of the public sector. Its functions and authority are to formulate policies and to regulate, promote and facilitate environmental management. After a lengthy process of consultations and discussions, the Environment Act approved by the legislature in March 1998, through its regulation, will enable concrete steps to be taken for environmental control and pollution prevention. It grants MARN the major authority it will need to exercise as the environmental authority. For the Environment Act to be implemented, the technical capacity of MARN will undoubtedly have to be strengthened, but taking care that it does not become bloated. The Act establishes an environmental management system with decentralized environment units at the sector level, and authorizes MARN to hire services, enter into agreements and coordinate activities with other government agencies to carry out its functions. At this writing, MARN does not yet have all the capacity necessary to carry out its duties in the program areas. The proposed program is therefore essential to make it operational. The activities to be carried out will be incorporated into MARN's new organizational structure.
- 1.15 To promote integrated municipal solid waste management, MARN will play the part of promoter and coordinator, but with direct participation by municipalities,

supported by specialized firms or NGOs working on-site. The FISDL will be in charge of supervision and monitoring of activities under contract, as a service rendered to MARN. Under the New Alliance approach, MARN would be supported by the Secretariat of the Presidency, its modernization units, and institutions that are regarded as strategic allies within the New Alliance, such as the FISDL, the Health Ministry, and the Ministry of Finance. Under the new government scheme, the FISDL plays a leading role in supporting and facilitating decentralization and municipal management in general.

- 1.16 The FISDL would not be involved in direct implementation, but will act as a facilitator of the process through its mechanisms for supporting municipalities. The government has indicated its intention of promoting the FISDL as a facilitator of technical assistance for municipalities, using a participatory approach in its local development programs.

**D. The Bank's sector strategy and experience**

- 1.17 The program for environmental pollution control in critical areas stems from a strategy agreed upon by GOES and the Bank in 1992 with creation of SEMA. At that time, a broad program of support for the government was conceived to help resolve the environmental problems deemed most serious. It was thus decided to support a series of operations which would respond to the needs and priorities that had been identified.
- 1.18 In this context, the government asked the Bank for support in the following four areas: (i) support for SEMA's environmental functions by implementing the environmental information and impact assessment systems, supporting selected environmental units, and helping to formulate policies and regulations; (ii) investments in the areas of highest environmental priority, initially identified as natural resource management in the upper Lempa River basin; (iii) a new program for urban pollution control in the areas of solid waste, water pollution and air pollution; and (iv) development of a program for resource management in coastal areas.
- 1.19 In the first area, the Bank has approved two technical-cooperation projects (TCs) that are already under way (ATN/SF-4036 and ATN/SF-5025). The projects were recently reformulated to adjust them to the disappearance of SEMA and the creation of MARN with its new functions and powers. The first TC supports key environmental units in the program for environmental restoration in critical areas proposed in this document. One of its outputs will be formulation of a solid waste policy and establishment of an environmental information system that will link MARN with other institutions. Because they are directly connected with the proposal for solid waste management under the program, solid waste policy-setting forms part of the conditions for disbursement.

- 1.20 Regarding the investments for natural resource management, the Bank approved loan 886/OC-ES, which is already being executed in support of natural resource management in the upper Lempa River basin, promoting soil conservation, legal consolidation of protected areas and monitoring of the water resources in the basin. These operations were approved jointly in 1996, and are known in the country as the El Salvador environmental program (PAES).
- 1.21 The operation for environmental pollution control in critical areas proposed herein addresses the factors of urban pollution (water, air and solid waste disposal). Preparation of the operation for coastal resource management will start in 1999, although preliminary diagnostic studies have already been conducted. In addition, the Bank is financing a program for reform of the water resource sector and the water supply and sanitation sector, which calls for activities and strategies for comprehensive management of water resources. All these operations are closely linked in their design and generally seek to institute an entire environmental management system operating nationwide. Together, these operations have allowed the Bank to maintain a strong presence in this area in the country, allowing timely support to be provided for the activities being carried out for environmental management.
- 1.22 It should be noted that two MIF operations are being processed to complement the proposed program. The first (TC-98-11-03-7) promotes changes in the manufacturing sector to achieve cleaner production processes and thus help ensure compliance with the environmental standards developed under the environmental pollution control program (ES-0074). The second MIF operation being prepared (TC-98-09-48-7), entitled "small enterprise and municipal pilot project," is designed to support the microenterprise sector in the delivery of such municipal services as garbage collection and street cleaning and to boost the capability of small and medium-sized municipalities in their negotiations with the private sector. The proposed program will rely on this MIF operation to promote private-sector participation in solid waste management in the small and medium-sized municipalities that will take part in the program.
- 1.23 The support the Bank is providing to El Salvador for the environment is consistent with the global strategy of assisting in the country's environmental sustainable development, as specified in the latest country paper approved by the Board of Executive Directors. The program also promotes private management and decentralized municipal execution consonant with the Bank's strategy of supporting modernization of the public sector.

#### **E. Programs with other donors**

- 1.24 Since 1992, environmental development in El Salvador has relied on support from various donors, through programs that have generally helped to increase environmental awareness. Particularly noteworthy is the presence of USAID



through its PROMESA program, which assisted SEMA and subsequently MARN in their initial phases and later in obtaining passage of the Environment Act. At present, support from USAID is focused on water resource management at the community level in rural areas and small-scale municipalities. Other donors, such as the World Bank and bilateral agencies have provided support on a smaller scale for specific needs, in response to requests from MARN. The Bank's programs have consistently been designed in consultation and coordination with other donors.

- 1.25 The issue of solid waste has emerged only recently, and until now no operations have been conducted to attack the problem through a comprehensive approach. However, a number of projects of limited scope have been carried out, generally focusing on small municipalities or micro regions, mainly with support from such agencies as the GTZ and USAID. In addition, the country has received assistance from the Pan American Health Organization (PAHO) for diagnostic studies and policy formulation. Several initiatives and proposals have been presented to support solid waste management in the country, from such sources as the KfW, the European Union and the Canadian cooperation agency. All of these initiatives require an institutional capacity and professional human resources in the area of solid waste management which does not yet exist in the country. Accordingly, the program activities to strengthen the regulatory and technical capability of MARN and the municipalities should help implement the operations.

### CURRENT SOLID WASTE DISPOSAL IN THE PROGRAM AREA

Santa Rosa de Lima dump



San Miguel dump



Hospital waste on hospital premises  
(San Miguel)



Santa Rosa de Lima dump



## **II. DESCRIPTION OF THE PROGRAM**

### **A. Objectives**

- 2.1 The general objective of the program is to help lay the foundation for environmental pollution control in the country by establishing and consolidating environmental management mechanisms in three critical areas: air pollution, water pollution and pollution caused by improper solid waste disposal. Its specific objectives are to: (i) establish operational information and monitoring systems in each of these critical areas, with established standards and regulations, a strengthened institutional capacity and specific strategies and plans for environmental pollution control; and (ii) promote environmental pollution control activities in the disposal of municipal solid waste, under the integrated waste management policy being implemented by MARN.

### **B. General description of the program**

- 2.2 The program features two major areas of activity: (i) support for the environmental regulatory framework to provide instruments for implementation of the Environment Act in the critical areas under the project; and (ii) support for comprehensive management of municipal solid waste, including collection and final disposal in small and medium-sized municipalities.
- 2.3 The first component, for strengthening of environmental management, focuses on the institutional capacity that the Ministry of the Environment and Natural Resources (MARN) must possess in order to carry out its functions as the environmental authority assigned to it under the Environment Act. Specifically, the program will support the implementation of concrete activities for environmental monitoring, dissemination of information and implementation of environmental legislation.
- 2.4 The second component centers on the management of municipal solid waste, helping the communities to adopt comprehensive solid waste management systems. Investments in solid waste management will be made in the framework of a strengthened municipal management capability that will permit the provision of municipal cleaning services with a viable business approach. Under this component, the municipalities will receive funds to resolve environmental management problems in garbage collection and final disposal, with special emphasis on their awareness-raising, promotion and technical assistance needs.

#### **1. Administration and coordination**

- 2.5 The whole operation is coordinated by MARN through a Program Coordination Unit (PCU), with financing for the general coordinator and the required

administrative, financial, physical, and logistical support. An international technical consultancy will also be financed as part of the coordination, mainly in the areas of integrated solid waste management and environmental economics to provide guidance for the program.

## **2. Component 1. Support for the environmental regulatory framework (US\$8.7 million)**

- 2.6 The program components can be broken down by critical area into the following subcomponents: (i) air pollution; (ii) water pollution; and (iii) pollution caused by solid waste.
- 2.7 For implementation of the subcomponents, a working team within MARN will be established and strengthened. The goal is to strengthen MARN's system of environmental permits and audits, managerial capabilities, capacity for analysis and dissemination of environmental data, and ability to promote standards based on solid technical and economic criteria and information. In general, the proposed program is expected to project a modern image of MARN, with a management mechanism balancing regulatory control and use of economic and market instruments.
- 2.8 Financing will be provided for the team that will execute the component, which includes a general coordinator of the PCU and a team of experts and advisors in the areas of air and water pollution control, hazardous hospital waste management and environmental economics. The team as a whole will work in the MARN structure to coordinate all technical and organizational matters pertaining to execution of the remaining three subcomponents. The international experts are expected to leave MARN with heightened capability in each of these areas and to help promote the technical standards and policies that will gradually be developed under each subcomponent.

### **a. Regulatory framework for air quality**

- 2.9 The objective of this subcomponent is to lay the foundations for air pollution control by developing the capability for monitoring, establishing standards and formulating investment strategies and plans. To attain that objective, the necessary activities have been designed and include establishment of monitoring capability, the development of regulatory capacity, basic studies and training, the provision of specialized training for professional staff in MARN and other institutions, such as the MSPAS and the National Science and Technology Board (CONACYT). The specific activities to be financed under this subcomponent are: (i) the supply, installation, start-up and operation of a **national monitoring network** on air quality, through contracts with the private sector for the installation and operation of the system, training and transfer of know-how; (ii) a plan for monitoring the air quality of the San Salvador metropolitan area and major cities in the country;

(iii) **technical assistance and consulting services** for technical audits of the system, the development of standards, design and evaluation of applications for emission permits, environmental audits for industrial establishments, and legal counsel; (iv) **studies** for: (a) evaluation and control of nonpoint sources; (b) a survey of point sources; (c) review of meteorological conditions in metropolitan San Salvador; (d) epidemiological conditions; and (e) an economic assessment of the impact of air pollution, justification of standards and the introduction of charges and economic incentives for pollution management; (v) **human resource training** in institutions directly associated with the objectives and activities of the program, such as MARN, CONACYT and the MSPAS; and (vi) the design and formulation of the **strategy for environmental pollution control**, including awareness-raising campaigns, the dissemination of information and proposals for investment or intervention.

#### **b. Regulatory framework for water quality**

- 2.10 The objective of this subcomponent is to lay the foundation for abatement of water pollution throughout the country and protection of the country's major aquifers. Its goals are to create appropriate institutional instruments and to develop a cost-efficient program to prevent pollution by means of short-, medium- and long-term measures. As in the air quality subcomponent, the activities included are information and monitoring, diagnostic and other studies, development of standards, instruction and specialized training, and the formulation of investment strategies and plans.
- 2.11 The following specific activities will be financed: (i) **advisory services and technical assistance** to strengthen the operating capacity of government offices for the production and validation of water resource data; (ii) start-up of a **program for environmental monitoring of water resources**; (iii) **studies**: a review of priority aquifers and watersheds, survey and description of the sources of pollution and discharges, survey of basic sanitation structures, and the epidemiological and economic impact of water pollution; and (iv) formulation of the strategy and **plan of action for the abatement of water pollution**.
- 2.12 The strategy and plan of action for environmental cleanup will be based on a comprehensive study evaluating alternative water quality goals to be reached over the short, medium and long terms for receiving waters, identifying the best solutions from an environmental, financial and economic standpoint. MARN will arrange consultations and agreements between the government and civil society to establish cleanup goals for bodies of water over time, within the framework of the environmental standards. While investments in the treatment of household wastewater will not be financed under this program, an important part of the plan of action will be to devise mechanisms to mobilize the priority investments identified and designed under the plan of action.

**c. Regulatory framework for solid waste (hospital and hazardous)**

- 2.13 This subcomponent is based on the solid waste policy formulated with IDB technical-cooperation funding (ATN/SF-4036-ES). Its purpose is to develop technical standards, conduct diagnostic studies and surveys on hazardous waste and carry out promotional and awareness-raising activities. Specifically, financing will be provided for the following: (i) **advisory services** for the formulation of technical and environmental standards for management of solid waste, both municipal and toxic and hazardous waste; (ii) **diagnostic studies**, including the survey of hazardous waste and an economic and environmental study to determine the optimal location, size and characteristics of the solutions for final disposal of municipal waste at both regional and national levels; and (iv) **promotion and dissemination activities** for comprehensive waste management, including toxic waste.
- 2.14 Under this subcomponent, MARN, in coordination with the MSPAS, will promote implementation of a **program for management and safe disposal of hospital waste**, at the hospital and health center level, preferably in metropolitan San Salvador, Santa Ana, San Miguel and the department of La Unión. A centralized program for the management, collection and final disposal has been designed for La Unión, using a safe cell system as a cost-effective solution for the short term. An agreement will have to be signed by MARN and the MSPAS for this activity. If the MSPAS decides to go ahead with another solution for the collection and final disposal of hospital waste, the funds for this activity may be reallocated under the same subcomponent.

**3. Component 2. Support for municipal solid waste management (US\$18.6 million)**

- 2.15 The purpose of this component is to foster comprehensive management of municipal solid waste and to resolve the problems of collection and final disposal by means of investments and programs to promote education and public awareness, community acceptance and financial sustainability of the collection and final disposal systems. A comprehensive approach to solid waste management will be taken, and recycling and composting will be promoted wherever feasible. There will be two areas of activity under this component: (i) investment resources to finance activities and investments for garbage collection and final disposal; and (ii) technical assistance to assist the municipalities in training, business organization, promotion, final design studies, environmental studies, community consultations, education campaigns and pilot programs, among other things.
- 2.16 The program is designed to serve the municipalities in the eastern part of the country in the departments of San Miguel and La Unión, as well others in the western part in the vicinity of the cities of Santa Ana and Sonsonate. If feasible, nearby municipalities such as Usulután and Ahuachapán may also participate, if

this would help maximize advantages of regional management. The idea is to commence with the municipalities of San Miguel, La Unión and Santa Rosa de Lima, which have already requested to take part in the program and for which feasibility studies are well advanced. Based on population size, these communities represent three different management models. San Miguel, the country's second largest city, has 170,000 inhabitants. La Unión has a population of 50,000 and Santa Rosa de Lima 25,000. As the remaining 35 municipalities in the departments of San Miguel and La Unión are smaller than Santa Rosa de Lima, special management models have been prepared to accommodate the size and socioeconomic conditions of each one. Master plans and preliminary designs have been prepared for Santa Ana and Sonsonate. These two intermediate cities are similar in size to San Miguel, and will use a comparable management model.

- 2.17 To attain the program objectives, it will be necessary: (i) to set up an efficient and transparent mechanism for the transfer of resources and to assist the municipalities with their action plans; (ii) to develop on-site capacity to make technical assistance available to municipalities at the regional level, to address their demands and needs; (iii) to work with municipalities from the bottom up in terms of general strengthening and their integrated development plans; and (iv) to foster and establish business and commercial mechanisms in each municipality to provide the population with solid waste disposal services and to ensure that such services are financially sustainable.
- 2.18 For execution at the municipal level, financing will be provided for two specialized enterprises or NGOs, to operate in San Miguel and Santa Ana covering the eastern and western areas, respectively. The main function of the enterprises or regional technical units will be to promote the program and furnish technical assistance to municipalities, including help in drafting action plans and throughout implementation of the integrated solid waste management plan for each municipality.
- 2.19 Municipalities can gain access to technical assistance and investment resources by presenting specific action and financing plans. In accordance with each action plan, the program will finance: (i) organizational technical assistance (institutional, business, legal); (ii) promotion, education, and public awareness campaigns on solid waste management; (iii) implementation of viable garbage collection systems; (iv) technical closing of dumpsites; (v) construction of new, environmentally viable landfills; and (vi) promotion of recycling and composting pilot schemes. All this forms part of the comprehensive solid waste management package, which includes measures to encourage scavenging. All activities will be governed by contracts.
- 2.20 Depending on each municipality's specific action plan, a blend of public and private management mechanisms are planned for trash collection and operation and maintenance of landfills, in light of San Miguel's favorable experience with the use



- of private microenterprises for the city's garbage collection services. The financing will not, however, cover trucks and equipment for the private sector although a rental or leasing system could be feasible in some municipalities. Support for private management will be provided by means of specialized technical assistance consultancies, with access to resources for a MIF small enterprise and municipal pilot project (TC-98-09-48-7), now in preparation. This technical cooperation project will provide support for microenterprise in solid waste and other municipal services and seek to enhance the capacity of small and medium-sized municipalities to negotiate with the private sector.
- 2.21 The technical and economic analysis for the 38 municipalities in the departments of San Miguel and La Unión found that it would be feasible for 55% of the population to receive door-to-door service using small and mid-sized dump trucks. In municipalities and small communities, however, the appropriate technology would consist of hand carts and tractors with service door-to-door still ensured, even in poor neighborhoods and inaccessible areas. Some types of landfills were studied, modeled, and costed on the basis of municipality size and the physical conditions at available sites in the program area.
- 2.22 Although sites for final disposal have been preselected on the basis of feasibility studies for the municipalities of San Miguel, Santa Rosa de Lima, and La Unión, the definitive sites will be confirmed by the final designs and following evaluation of municipal action plans to ensure that they satisfy the environmental criteria set out in the Operating Regulations, which include consultation with the public and acceptance by the residents, as well as technical and environmental permits which need to be granted by MARN and MSPAS. All of the designs include steps to control leachates, gases, odors, vectors, dust, erosion, drainage, etc., and have a useful life of 15 years. The preliminary engineering designs for the three largest municipalities in the eastern part contain specific site conditions. Feasibility designs for scenarios involving loads of 0.5, 1.0 and 3.0 tons per day have been prepared for the remaining municipalities. The program also includes the technical costs of closing the present dumps as well as measures to alleviate environmental effects and their social impact.
- 2.23 Although each municipality is independent as far as its procedures for garbage collection and final disposal are concerned, during the activities to promote the program with municipalities and during the final design of the solutions, efforts will center on encouraging final disposal in a setting of environmental efficiency for the area and public consultation, subject to fulfillment of environmental standards and techniques for disposal to be prepared under component 1. The program will actively seek to hold consultative sessions to facilitate inter-municipal agreements in this regard and to arrive at cost-effective solutions. In doing so, an effort will be made to determine whether the landfill management can be performed under contract or through concessions with the private sector.



### **C. Scaling of the Program**

- 2.24 The component for strengthening environmental management has been designed in accordance with an analysis of MARN's needs, taking into account the powers and functions delegated to it by the recently approved Environment Act. The scaling reflects the basic requirements for the monitoring system to operate effectively, generate information and implement action plans in the short run. The aim was to have the operation complement various activities now being carried out in the country, building on the advances already achieved in other operations. This program avoids adding new units or levels of government bureaucracy and makes use of existing structures, encouraging the use of service contracts.
- 2.25 The activities with the municipalities are being scaled in accordance with the demand and interest expressed by the communities as well as an analysis of the investments and technical assistance needed to provide a comprehensive solution to their problems. A number of alternative forms of intervention were also evaluated from a technical, environmental, economic, and political standpoint.
- 2.26 In view of conditions prevailing in the municipalities, it was agreed that the program should focus on supporting a process, in which the basic management factors are given equal importance with the strictly technical ones. A model offering greater flexibility in execution was therefore chosen, in which technical guidelines are defined without specific solutions being imposed *a priori*. Based on the financial analyses conducted, it was determined that some of the municipalities would be unable to absorb investment in the collection and final disposal of solid waste. Accordingly, the final volume of investment in the eastern region would cover primarily the main mid-sized cities as well as a few small municipalities, while scaling for the western region was based on the needs of the communities in that area, mainly Santa Ana and Sonsonate. The sizing of this component also reflects the role to be played by microentrepreneurs in garbage collection services.

### **D. Program cost and sources of financing**

- 2.27 The total cost of the program will be US\$38.5 million (see the Cost Summary Table at the end of this chapter).
- 2.28 The IDB loan, amounting to US\$29.8 million, will be financed by resources from the Ordinary Capital (OC), on the following terms and conditions:

Amortization period:	20 years
Interest rate:	variable
Grace period:	6 months after the final disbursement
Credit fee:	0.75%
Inspection and supervision:	1% of the loan amount

- 2.29 The Bank's loan, to be made in United States dollars, will be drawn on Ordinary Capital under the single-currency facility. Interest accruing during execution will be financed out of the loan.
- 2.30 *Local counterpart and cofinancing.* The Government of El Salvador has agreed to provide the local counterpart resources necessary for the program. The local counterpart funding for the loan will amount to US\$8.7 million over five (5) years, including US\$1.6 million for finance charges and US\$800,000 for contingencies and cost escalation. The counterpart resources may include up to US\$7.7 million in funds from the International Cooperation and Development Fund (ICDF) of Taipei, China,<sup>2</sup> whereby the ICDF would finance the local counterpart on a *pari passu* basis, thereby fulfilling the 80%/20% ratio. The local counterpart resources may also include contributions made by the municipalities for items not eligible for ICDF funding. The terms of the ICDF loan would include an annual interest rate of 3.5%. The amortization period, grace period, and credit fee would be similar to those of the Bank loan.
- 2.31 The ICDF loan would not be tied. Prior to distribution of this document to the Board, the Bank received a letter of commitment from the ICDF for prospective financing of part of the local counterpart resources to be provided under this operation. Once the Board of the Bank approves the operation, and the loan contract between the Government of El Salvador and Taipei enters into effect, the Bank will enter into a technical-cooperation agreement with Taipei so that the Bank can ensure technical monitoring of the program during its execution.

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<sup>2</sup> Use of the "International Cooperation and Development Fund – Taipei" does not in any way reflect a position taken by the Bank or any of its member countries on matters of national sovereignty or diplomatic recognition.

**Table of Investment by expense category  
(in thousands of dollars)**

Item	Adm. Exec	Component 1			Component 2	Total
		Air quality	Water quality	Hazardous hospital waste	Municipal waste	
Salaries	168	120	120	120	0	528
Training	0	60	60	50	200	370
Consultancies / contracts	920	235	290	290	4,464	6,195
Studies	0	732	2,640	250	150	3,772
Operating expenses	98	0	0	0	0	98
Education and promotion	0	50	50	50	290	440
Equipment (Computers for monitoring)	131	1,840	360	0	176	2,507
Final disposal works*	0	0	0	280	11,063	11,335
Collection equipment*	0	0	0	1,120	1,388	2,508
Investments in pilot projects (recycling, composting)	0	0	0	0	835	833
<b>Total</b>	<b>1,317</b>	<b>3,037</b>	<b>3,520</b>	<b>2,160</b>	<b>18,566</b>	<b>28,600</b>

\* Based on the sample of analyzed municipalities; specific investments will depend on municipal action plans.

**Summary of Costs**  
**(in thousands of dollars)**

<b>Description</b>	<b>IDB (OC)</b>	<b>Counterpart*</b>	<b>Total</b>	<b>%</b>
<b>1. Management and Coordination</b>	<b>817</b>	<b>500</b>	<b>1,317</b>	<b>3.4</b>
<b>2. Support for environmental regulatory framework</b>	<b>7,200</b>	<b>1,517</b>	<b>8,717</b>	<b>22.7</b>
a. Air quality regulatory framework	2,500	537	3,037	7.9
b. Water quality regulatory framework	3,000	520	3,520	9.2
c. Solid waste regulatory framework (municipal, hazardous and hospital)	1,700	460	2,160	5.6
<b>3. Management of municipal solid waste</b>	<b>14,351</b>	<b>4,215</b>	<b>18,566</b>	<b>48.3</b>
a. Technical assistance	3,400	815	4,215	11.0
b. Education and institutional strengthening	816	0	816	2.1
c. Investments	9,300	3,400	12,700	33.1
d. Pilot projects	835	0	835	2.2
<b>Subtotal</b>	<b>22,368</b>	<b>6,232</b>	<b>28,600</b>	<b>74.5</b>
<b>Unallocated</b>	<b>3,096</b>	<b>841</b>	<b>3,937</b>	<b>10.2</b>
Contingencies	1,815	492	2,307	6.0
Cost escalation	1,281	349	1,630	4.2
<b>Financial costs</b>	<b>4,383</b>	<b>1,572</b>	<b>5,955</b>	<b>15.5</b>
Interest	3,888	571 <sup>1</sup>	4,459	11.6
Credit fee	0	963 <sup>2</sup>	963	2.5
Inspection and supervision	295	38 <sup>3</sup>	333	0.9
External audits	200	0	200	0.5
<b>Total</b>	<b>29,847</b>	<b>8,645</b>	<b>38,492</b>	<b>100</b>
Percentage	77.5%	22.5%	100%	
<p>* The local counterpart resources may include US\$7.7 million financed with ICDF resources, according to initial agreements reached between the Government of El Salvador and Taipei.</p> <p><sup>1</sup> Includes interest on the ICDF loan during the life of the program.</p> <p><sup>2</sup> Includes the credit fee on the ICDF loan.</p> <p><sup>3</sup> Includes the inspection and supervision fee for the ICDF loan.</p>				

### **III. THE BORROWER, EXECUTING AGENCIES AND EXECUTION OF THE PROGRAM**

#### **A. The Borrower and the Executing Agencies**

- 3.1 The Government of El Salvador is the borrower and guarantor for the program. The Ministry of the Environment and Natural Resources (MARN) will be responsible for general coordination of the entire program, and is therefore the executing agency. It will also implement Component 1 directly. For Component 2, MARN will be general coordinator, relying on the FISDL for supervision and monitoring of activities with the municipalities, and on NGOs and private contractors for the activities to be carried out by the municipalities themselves. Specific execution mechanisms for each component are described below. For general coordination of the program, a Program Coordination Unit (CPU) will be set up in MARN, with a coordinator and the necessary financial and administrative staff. The proposed implementation structure has been tailored to existing institutions and has been validated and agreed upon in the Territorial Development Committee and approved by the Secretariat of the Presidency. In order to start implementing the program as soon as possible, the sum of US\$300,000 will be made available to establish the basic execution structure for the two components, upon compliance with the usual Bank conditions precedent to the first disbursement set forth in paragraphs 4.01(a), 4.01(b), and 4.01(e) of the loan contract, and entry into force of the contract. The second disbursement of the loan proceeds will be subject to fulfillment of the conditions set forth in paragraphs 4.01(c), 4.01(d), and 4.01(f) of the contract.

#### **B. Execution of Component 1. Support for the Environmental Regulatory Framework**

- 3.2 For this component, the PCU coordinator will be responsible for ensuring that each subcomponent adheres to a program schedule with well-defined outputs and targets. The PCU will handle the administrative aspects and follow up on the timetable for the work, coordination, and presentation of the financial statements for the component. Also, the coordinator will put together a technical team consisting of experts and advisors in each of the program's subject areas, whose function will be to direct, from a technical stand point, all phases in execution of the three subcomponents.
- 3.3 Each subcomponent will be carried out in accordance with a specific work plan, which will include terms of reference, to be drafted by each responsible technician at the start of his contract. The plan will need to be submitted by the coordinator to the Bank for approval. It will include the sequencing of activities required, for instance, to begin studies, hiring, signing of agreements and contracts, and training courses. MARN will carry out these activities through contracts or agreements. In

this way, MARN can contract with a private company for the purchase, installation and operation of the air monitoring system, and sign agreements or contracts with the appropriate institution to support environmental monitoring activities. MARN will also reach an agreement with the respective government agencies to conduct studies and carry out monitoring in the area of water pollution. In addition, MARN will negotiate and sign an agreement with the MSPAS for implementation of the hospital waste handling program.

**C. Execution of Component 2. Support for the management of municipal solid waste**

- 3.4 The municipalities will implement their own comprehensive solid waste management activities, with specialized technical assistance provided under the program. At the central government level, MARN will coordinate the program and promote compliance with environmental regulations on solid waste management.
- 3.5 As the highest authority for environmental issues, MARN's functions include formulating, publishing, and publicizing comprehensive solid waste management policy, as well technical, environmental, and health standards, in coordination with the Ministry of Health. It also establishes rules for compliance with those standards and a plan for implementing them. In addition, through its PCU, MARN lays down the Operating Regulations of the component's resources. Through FISDL, it hires enterprises or NGOs to assist the municipalities participating in the program with the drafting of actions plans, technical assistance, or investments that might enable them to comply with established technical and environmental norms. MARN will be responsible for providing technical guidelines for implementation of the component and for coordinating reception of the municipalities' action plans and applications for financing. For its part, the FISDL will take advantage of its institutional infrastructure to facilitate and supervise program activities at the municipal level.
- 3.6 Specifically, the services to be rendered by FISDL include: (i) hiring the NGOs or enterprises that will provide support with drawing up action plans, technical assistance, and execution of investments; (ii) supervising bidding and procurement procedures; (iii) issuing a technical opinion on the action plans submitted by the municipalities taking part in the program; (iv) orienting and evaluating procedures used in implementing municipality action plans; and (v) participating in approval of reports. MARN will furnish the FISDL with investment funds to support the municipalities' action plans, while the FISDL will draft and consolidate project implementation and technical assistance reports and justify to MARN the use of funds, using standard Bank procedures. The FISDL will use its current mechanisms to transfer investment allocations to the municipalities. The agreement between MARN and the FISDL may stipulate a fee or payment for services rendered of no more than 2% of the investment funds administered.

- 3.7 Once the FISDL has given its expert opinion, MARN will ascertain the feasibility of the action plans and compliance with the eligibility and feasibility criteria of the Operating Regulations. The PCU will establish a system of operational audits to verify compliance with outputs, environmental norms, and proper use of funds in general. Whenever necessary, MARN may turn to the Territorial Development Committee, which it chairs, for consultation. The Committee comprises representatives of the Secretariat of the Presidency, the Ministry of Finance, the FISDL, ANDA, the Ministry of Agriculture, the Ministry of Public Works (MOP), the Ministry of Health, and the Public Investment Commissioner. At the same time, a mechanism to finance municipalities will be set up with the Ministry of Finance, using a clearly regulated transfer and subsidiary credit agreement. It is expected that there will be tripartite agreements between the municipalities, MARN, and the Ministry of Finance.
- 3.8 The municipalities themselves will be responsible for actual implementation of the action plans agreed upon. In order to take part in the program, the municipalities commit themselves to adopting viable solid waste management systems and to complying with the policies and technical, environmental, and health standards set by MARN and the MSPAS. They also undertake to ensure that garbage collection and final disposal services are efficient, of high quality, and financially sustainable. This entails helping municipalities to develop a business approach to garbage collection and disposal services and, whenever possible, promoting business – especially microenterprise – management. The municipalities will be encouraged to adopt appropriate financial management procedures, geared to generating their own income through utility tariffs, efficient tax collection, and fulfillment of loan obligations with the Ministry of Finance.
- 3.9 To promote and boost the project on the ground, the idea is to hire the services of contractors or NGOs familiar with local conditions. Specifically, a firm will be hired in the east, covering the area in and around San Miguel, La Unión, and Santa Rosa de Lima, and another in the western region, covering the area in and around Santa Ana and Sonsonate. These contractors would have experience, in El Salvador and abroad, of solid waste management, the environment, municipal management and finance and they would be subject to performance evaluation and compliance with terms of reference and contracts entered into with the municipalities and the FISDL. The activities contemplated for the contractors include: (i) helping municipalities to prepare, evaluate, and formalize their comprehensive solid waste management actions plans, along with their respective financing plans and applications; (ii) providing support during the organization phase for consolidation of a business approach, strengthening of municipal finances, legal counsel in awarding tenders and concession contracts, fund-raising, and final designs for construction works; (iii) providing technical assistance as defined in the action plans, including institution-building, public consultation, educational and awareness campaigns and recycling and composting pilot schemes;

and (iv) providing support in starting up and following up activities and investments related to solid waste collection and final disposal.

- 3.10 The project's principal management tool will be the action plan agreed upon with each municipality. This action plan will schedule activities, outputs, goals, and commitments to be met during project execution. At the same time, such an action plan will be accompanied by a financing plan specifying technical assistance and investment needs.
- 3.11 The investments in garbage collection and final disposal will be executed in accordance with the "Operating Regulations of the Solid Waste Management Investment Fund" which set out the criteria, rules and procedures for approval and execution of solid waste management projects submitted by the municipalities. The regulations will be administered by the executing unit, and any change in the criteria must be approved by the Bank. The entry into effect of the Operating Regulations is a condition precedent to disbursement of the resources for Component 2. The main points of the regulations are described in paragraphs 3.12 through 3.24.

**D. Salient features of the Operating Regulations of the investment resources for solid waste management**

- 3.12 The purpose of this investment fund is to finance viable projects for the collection, handling and disposal of solid waste with a view to improving the sanitation and environmental conditions at the municipal and regional levels.
- 3.13 **Eligibility criteria.** All municipalities in the departments of San Miguel and La Unión in the eastern zone, as well as those in the western zone in areas served by the cities of Santa Ana and Sonsonate will be eligible to take part in the program. The municipalities must agree to comply with the requirements set out in the Operating Regulations and with their obligations in respect of the counterpart funds and repayments. These commitments include responsibility for reforming municipal finances, environmental commitments, public consultation, and tariff adjustments, among others. Each participating municipality must also set up a small committee that will serve as the local counterpart and take part in all meetings and negotiations, in formulating the program and preparing the request, and monitoring its involvement in the program execution.
- 3.14 **Eligible activities.** The investments to be financed from the investment fund may include final designs, machinery and equipment, small-scale infrastructure, and any other expense directly related to execution of the program, provided that they form part of a solid waste management package, as defined in each action plan. In special situations, financing will be authorized to cover operation and maintenance of the sanitary fills for a maximum of three years, under a mechanism whereby financing for the program declines over time. The conditions for transferring funds



to the municipalities are described in paragraph 3.17. Not included is financing of land and payments for any municipal expense incurred as a result of participation. Technical assistance and training will be covered by other funds designated for this purpose, but will be subject to the plan of action that is presented. The investment fund does not finance private sector investment.

- 3.15 **Environmental criteria.** All projects must comply with the environmental and sanitation standards established by MARN and the MSPAS, and include an analysis of their environmental impact. In the case of sanitary landfills, the natural conditions of the sites chosen must be appropriate. It must also be demonstrated that the terms of reference for site selection have been followed, and a monitoring plan in line with the guidelines to be drawn up by MARN must also be presented. Other factors to be considered include soil type, proximity to the water table and other bodies of water and depth, the distance from built up areas and other structures, acceptance by the community, regional environmental outlook, and useful life. These factors are addressed in the draft "Proposed Regulations for the Management of Municipal Solid waste," which is now being discussed and validated, and will need to be approved before investment is made in sanitary landfills. Also, evidence must be presented that the public has been consulted and the program has social acceptance, including, if necessary, the formulation of a plan to minimize its social impact.
- 3.16 **Feasibility criteria.** Each project presented by the municipalities must include a discussion of its technical, environmental, institutional and financial feasibility in accordance with specific criteria cited in the regulations. In addition, there must be an evaluation of the alternatives available regionally, as compared with those found locally, in terms of cost and environmental impact. Justification of the technical design, including a description of the environmental impact of the program, must be included. Each proposal will require a technical environmental permit issued by MARN as well as the permission of MSPAS. MARN will certify that the solution is environmentally feasible. An indication of the mechanism that will be used for project management and administration within the municipality and its organizational structure will also need to be presented. The financial feasibility picture must include the new rates proposed to ensure that the program is sustainable. No projects will be financed without a plan guaranteeing financing of its operation and subsequent management.
- 3.17 **Conditions for the transfer of financial resources.** The funds assigned to each municipality will be granted under the following schemes, depending on the action plan and financing plan agreed upon with each municipality. The range of financing will include: (i) funds put up by the municipalities themselves, to cover up to 10% for technical assistance and up to 20% for investments; (ii) technical assistance under the program in the form of a donation or grant; (iii) a direct subsidy for physical investment in projects bringing environmental and social benefits; and (iv) loans. These funds are to be transferred according to an operations plan agreed

upon by the Ministry of Finance, the PCU, MARN, the FISDL, and the municipalities. The investments will be made under a shared financing arrangement between the central government and the municipalities and will be transferred in accordance with a subsidiary credit agreement between the Ministry of Finance, MARN, and the municipalities, on the same credit terms for all other municipalities. Funds derived from the annual 6% transfers (the Economic and Social Development Fund—FODES) could only be used as collateral for the loan.

- 3.18 In the event of failure to comply with the terms of the Operating Regulations governing the investment fund and those agreed upon by the central government and the municipalities, the municipalities will be subject to any penalty recommended by the government, including repayment of interest on the loan through withholding of annual government transfers.
- 3.19 **Financing of the operating expenses and maintenance.** The municipalities shall establish rates to ensure that the waste collection system is financially sustainable. For final disposal, each town must present a financing plan showing the various sources that have undertaken to underwrite operation and maintenance of the sanitary landfill. This may include rates, "tipping fees" and other types of municipal revenue earmarked for this purpose. For collection expenses, it must be demonstrated that the service will be financially sustainable with the specific fee charged, which will be administered in a separate municipal account.
- 3.20 **Cost-effective solutions.** Prior to approval of each application, the plan of action must show that the proposed collection and final disposal systems are based on the most cost-effective alternatives. In particular, the private management and direct municipal management options must be compared and analyzed. The program will favor private management if it proves to be feasible with a low financial burden for the community. If private management is selected, the plan of action must include mechanisms to encourage competition, efficiency and performance control.
- 3.21 **Procedure for the presentation and approval of action plans and applications for funding.** The municipality, with technical support from the firm hired, will prepare an action plan and application for funding, which will be submitted to the PCU in MARN. The PCU will examine the application carefully to verify that the program is technically and environmentally feasible. This is an exercise that will include field visits, interviews with members of the municipality, meetings with the mayor's office and consulting the local community.
- 3.22 At the same time, the PCU will request the FISDL's expert opinion regarding municipal management capability and the Ministry of Finance assessment of the feasibility of the financing plan. Approval of actions plans will be granted jointly by these entities, and they will form the basis for the respective support agreements.

- 3.23 As soon as a municipal action plan is approved, the tripartite agreement between MARN, the Ministry of Finance, and the municipality will be signed. It will specify the purpose of the project (the solid waste management plan), the municipality's responsibilities, and its contribution to the financing. Equipment and machinery will be purchased according to FISDL procedures. Any construction that may be necessary will be requested by the municipalities, with specialized technical assistance and supervision from the FISDL.
- 3.24 **Supervision.** The PCU, with FISDL support, will supervise project execution by means of periodic inspections to be performed at least once a month during the ensuing 12 months to ensure that the municipality is operating the system properly. Such inspections will cover technical, environmental, institutional and financial considerations.

**E. Technical assistance for the municipalities**

- 3.25 During program execution, based on the action plan drawn up by each town, the program will provide the necessary technical assistance and training: (i) to improve procedures and efficiency in the municipality, including a review of the organizational structure if necessary, and (ii) to train and prepare members of the municipal staff to take on and operate the project in the subsequent phases. If the municipality decides to have its system (collection or disposal, or both) operated through the private sector, the program will help to obtain specialized technical assistance to support the authorities in drawing up the contract and conducting the negotiations. The executing unit may also provide municipalities with additional training or technical assistance if shown to be needed by subsequent visits and inspections.

**F. Participation by the private sector**

- 3.26 The private sector is now successfully engaged in helping to deal with waste collection in the municipality of San Miguel. This experience is expected to improve and to be gradually replicated in the other municipalities. In San Miguel, for example, the private sector handles 85% of the waste collected, and this could increase. In the other two cities, a level of 35% is targeted at the outset.
- 3.27 The program will also sponsor private sector participation in final disposal of solid waste, with the municipality continuing to supervise and monitor the operation and ensure better service. Participation of this kind will be initially sought in major cities, which are more attractive because of the volumes involved and financial conditions.
- 3.28 The idea is to seek access to MIF resources under a Small Enterprise and Municipal Pilot Project (operation TC-98-09-48-7) so that the municipalities can receive specialized technical assistance for the tasks of negotiation and contracting with the

private sector. At the same time, the program will furnish technical assistance through these MIF funds to assist and train the private sector. Such training could be given in such areas as business organization, keeping proper records, and obtaining credit through the commercial banking system for the purchase of equipment.

## **G. Flow of funds from the program**

3.29 The program funds will be channeled through the Program Coordination Unit in MARN, which will administer the funds in accordance with a schedule agreed upon with the Bank. The idea is for funds to flow through separate accounts, covering: (i) the program's administrative and coordination expenses; (ii) expenditure on studies and investments associated with Component 1 activities; (iii) contracts for specialized firms supporting Component 2 execution in the field; (iv) resources for institutional strengthening, training and education for the municipalities; and (v) funds to invest in collection and final disposal.

3.30 MARN will channel Component 2 investment funds to the municipalities through the FISDL, following that institution's procedures and the action plans agreed upon and approved by MARN and pursuant to a subsidiary agreement signed by the Ministry of Finance, the municipalities, and MARN specifying the commitment and terms for repaying the Ministry of Finance loan (see paragraph 3.17).

## **H. Disbursement schedule**

3.31 The time frame for execution of the program will be five years. Financing for direct costs will be disbursed as follows:

**Disbursement schedule  
(in thousands of dollars)**

<b>Category</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Total</b>
Administration and coordination	260	260	260	260	277	1,317
Support for environmental regulatory framework	1,700	1,700	1,700	1,800	1,817	8,717
Solid waste management	1,600	2,800	4,700	5,150	4,316	18,566
Total	3,560	4,760	6,660	7,210	6,410	28,600

## **I. Purchase of goods and services**

3.32 Procurement for works and goods and services will be carried out in accordance with Bank standards. As soon as the executing unit has been sufficiently strengthened and its staff trained, the ex-post procedures for review of bids on contracts for works, goods and services will be gradually tested. Pursuant to

standard procedures, international competitive bidding will be used for procurement of goods valued at US\$250,000 or more, and construction works valued at US\$1 million or more. International bidding will be used for consulting services contracts valued in excess of US\$200,000.

- 3.33 Bidding on items valued at less than the thresholds quoted in the preceding paragraph will be held in accordance with the procurement procedures contained in the Management and Natural Resources Management Division 2 (RE2/EN2) technical files and as specified below:
- a. Unrestricted local competitive bidding for goods valued at between US\$150,000 and US\$249,999, for construction works between US\$250,000 and US\$999,999, and for consulting services between US\$100,000 and US\$200,000 (private local competitive bidding with prequalification). Under this procedure, notices for the local bidding will be published twice in a newspaper, or only once in two major national newspapers. Contracts will be awarded to the offer evaluated as the most economical by a technical committee, and the technical report on the proposed contract award will be submitted to the Bank for its approval.
  - b. Private bidding for goods in amounts of less than US\$150,000, works of less than US\$250,000, and consulting services valued at less than US\$100,000 (private Ad Hoc competition). In applying these procedures, the executing unit shall invite at least five bidders to take part, with sufficient time for submission of bids to ensure that the process is competitive. Once the contract has been awarded, and before notifying the winning bidder, the bidding authority must have received the Bank's nonobjection.

**J. Recognition of expenditures and advance of funds**

- 3.34 The Bank may recognize expenses incurred for designs, studies and program activities as part of the financing and the local counterpart funds. Local expenditures of up to the equivalent of US\$500,000 incurred in the 18-month period prior to the date on which the loan was approved will be recognized as part of the local counterpart funding. This item includes sites purchased by the municipal authorities for final disposal of the solid waste, to be supported under the program.

**K. Evaluation and monitoring of the program**

- 3.35 Throughout program execution, evaluation and monitoring will be conducted in the following manner: (i) administration missions will be dispatched annually for evaluation purposes, with the first one scheduled for first quarter of year two of the program; (ii) semiannual reports by component, describing the activities completed, the status of the revolving fund, and that of the bank accounts used to manage the

IDB loan proceeds and local counterpart funding; and (iii) semiannual reports from the PCU will be presented on the allocation of investment funds with the various participating municipalities, to include the terms and conditions of the agreements with each municipality.

- 3.36 Annual audits of operations and financial statements will be performed by component by a firm of independent public accountants acceptable to the Bank. Based on these audits, annual administration missions will be carried out to evaluate the program activities. The operations audits will be contracted out using resources from the Bank loan. Their purpose will be to determine the degree to which the goals of the activities established for the program have been achieved and to provide the executing agencies with the information necessary to make any necessary adjustments in program implementation. A specialized consulting firm will carry out the ex post evaluation of the program six months after its completion.
- 3.37 In addition to these formal monitoring activities, the program will finance special consultancies to assist with start up or take-off of the program, to monitor the works with experts in municipal development at critical stages of execution, and to conduct surveys and consult with the communities to verify compliance with goals – in particular, with regard to improvements in quality and coverage of waste collection service. The program shall also require timely coverage of discussion, formulation and approval of environmental policies and standards. The evaluation activities will pay special attention to the sustainability of institutional strengthening for environmental management.

## **IV. FEASIBILITY OF THE PROGRAM**

### **A. Technical feasibility**

- 4.1 The technical criteria used to design the environmental management support component are based on an analysis of MARN's needs and environmental management in the country in general. The technical assistance activities, specialized consultancies, promotion, training activities, and strategy formulation are all essential and technically viable. Also, various alternatives have been evaluated for the monitoring teams, and those that can be most effectively adapted to conditions in El Salvador have been selected.
- 4.2 The solid waste management component calls for specific investments at the municipal level. During the design of the program, different types of intervention were evaluated in terms of collection and final disposal. The solutions recommended here are technically established and can be easily implemented with local technology and installed capacity. The sanitary landfill design reflects internationally recommended engineering practices to ensure safe final disposal of waste. In addition, these designs incorporate environmental, social and economic criteria that are tailored to the particular characteristics of each municipality.

### **B. Environmental and social feasibility**

- 4.3 The nature of the proposed program is strictly environmental inasmuch as its objectives and goals have been designed to start work on ways to solve pollution problems. The program was formulated on the basis of the recently approved Environment Act and the configuration of an environmental management system headed by MARN. With a view to evaluating the perception of the program of various agencies concerned and to incorporating it into the design, various groups were consulted for each component while the study was being conducted. The groups targeted included municipal focal groups as well as participatory meetings and workshops.
- 4.4 Discussion of the issues of air and water assumes a situation where basic information is not available for decision making, let alone for concrete steps for pollution control. This program will make it possible to have reliable environmental data that will in turn serve to frame, propose and implement appropriate environmental policies and standards for pollution control. Such data will also be widely available to the public, thus producing a favorable impact by heightening the public awareness to environmental problems. Under this program, environmental management establishes standards and ground rules that are socially accepted and at the same time offers flexible mechanisms and market instruments for introducing an effective clean-up process.

- 4.5 For investments in municipal solid waste management, criteria are being introduced to ensure that the solutions meet environmental and technical standards. To achieve this goal, the investments must comply with MARN's solid waste management policy and standards, whereby solid waste is handled by integrated management solutions incorporating specific environmental mitigation measures as well as actions to promote reductions in point pollution, recycling, heightening public awareness, public consultative sessions, and assistance to communities affected. All of these factors are an integral part of the program, and have been costed and scaled in designing the component.
- 4.6 MARN's proposed "municipal solid waste management regulations" and the Operating Regulations governing the investments introduce specific environmental criteria, which must be fulfilled for the requests, submitted by municipalities to contain suitable environmental provisions. Care will be taken to ensure that final disposal solution is based on criteria embodying a regional environmental concept, promoting joint community participation. The program will have a favorable impact on the region since it calls for closure of open dumps which are totally unacceptable and are now polluting rivers, groundwater, and soils, and adversely affecting the health of the community and spoiling the landscape in the region. Specific mitigation measures will be used to counter the adverse environmental effects resulting from closure of the dumps and construction of new landfills. Such measures will also need to have public acceptance and fulfill the criteria for suitable sites.
- 4.7 The environmental conditions contained in the Operating Regulations to being construction of sanitary landfills are as follows: (i) the government must approve the technical policy and standards for solid waste management; (ii) the request must include the final designs and an environmental impact assessment; (iii) it must be demonstrated that the public was consulted and that the project has received public acceptance; (iv) a social impact plan is required; and (v) MARN and MSPAS must conduct evaluations and grant the necessary permits.
- 4.8 In the case of the largest municipalities, San Miguel, La Unión and Santa Rosa de Lima, these processes are already under way or have been carried out as part of site preselection. The sites were preselected on the basis of technical and environmental criteria. In each case, the communities have already obtained the technical opinion of MSPAS and MARN. The community consultative process is now in progress. The presence of scavengers is a minor problem; ten families have been found to live in the San Miguel dump, and they will be brought into the pilot recycling and composting project. A small community cemetery is located beside the present San Miguel dump. The municipality has started to contact members of the community to offer them suitable compensation for giving up this location, and one of the conditions contained in its action plan will be that a satisfactory solution has been found to this matter.



**C. Analysis of institutional feasibility**

- 4.9 The program is institutionally feasible, given that execution is based on institutional structures with functions and responsibilities that are clearly defined for the different activities envisaged in the operation. MARN fulfills its role as project coordinator and promoter in accordance with the functions assigned to it in the Environment Act. At the same time, the other institutional support agencies, such as the FISDL, also participate in accordance with the functions assigned to them by law and with the capabilities acquired in their specific specialized fields.
- 4.10 Execution of the program relies largely on service contracts, which means that the direct role of execution is minimal: except for coordination, supervision, and follow-up. Execution is thus structured in such a way as to be agile and flexible and to minimize the bureaucratic aspects of direct management. Component 1 activities are basic for MARN. They will set targets designed to achieve an environmental regulatory framework that boosts its management capability. The main targets of Component 2 activities are the municipalities supported by specialized consultancies, under the supervision and monitoring of the FISDL.
- 4.11 The program is based on the premise that both MARN and the municipalities are weak in certain aspects. As a result, the program is structured to move forward in a process that ensures that these factors of institutional weakness are gradually resolved. The FISDL does have the training needed to supply MARN with the services specified in the program and under the new government it is playing a leading part in decentralization and support for municipalities.
- 4.12 It is worth pointing out that the municipal solid waste management program will be structured around an action plan in which support and strengthening phases will come first, followed by specific investment activities. The execution methods and criteria ensure that the program first receives ample promotion and publicity, so that only interested municipalities committed to its stated objectives will be able to participate.

**D. Analysis of financial feasibility**

- 4.13 Component 1 will be implemented under the present structure of MARN, which receives a budgetary allocation from the central government. One of the objectives of improving environmental management will be to propose and implement mechanisms for charging penalties and fees for services to ensure that the environmental information and management systems are sustainable. Hence, in the long run, this component will lessen the share of the budget going to these activities. At the same time, the monitoring and information management capacity may have a favorable effect by reducing the government expenses generated by insufficient or unreliable information.

- 4.14 In Component 2, all of the municipal solid waste management projects that are underwritten by the investment fund must be considered financially sustainable, to ensure that they can continue to be operated and maintained upon completion of the project. To that end, participating municipalities will take concrete steps to improve collection and to adopt rate and rate adjustment mechanisms that are sufficient to ensure the sustainability of collection services and of operation and maintenance of sanitary landfills.
- 4.15 The studies conducted for each municipality show that: (i) in large municipalities, the present rates cover the direct cost of this service, but not necessarily the municipalities' high indirect costs; (ii) in the small municipalities, the present rates are very low and do not cover all of the direct costs. The communities are willing, however, to accept higher rates for better service; and (iii) generally speaking, the revenue derived from other sources is low, a situation that could be improved by expanding the revenue generating base through better property records and cost recovery systems. Two of the municipalities have already seen a substantial increase in their revenue as a result of the action in these areas. The program will provide the municipalities with technical assistance to improve these problems and their financial systems overall. Achieving these goals is expected to boost municipal revenue significantly in the long term, thus ensuring that the program activities are financially sustainable.
- 4.16 The financial feasibility of the projects to be financed under the program is considered a process in which initially appropriate technical assistance and training is given to municipalities to enhance their efficiency so they can generate their own revenue; and, subsequently, service quality is upgraded and the benefits of the program are demonstrated to the target population as a step to increasing rates.
- 4.17 The results of the financial projections for the five municipalities examined (San Miguel, La Unión, Santa Rosa de Lima, Santa Ana and Sonsonate) show that financial feasibility depends largely on the size of the city. In the case of San Miguel and Santa Ana "the largest ones" the projections indicate that revenue from the waste collection fees, with some modest annual raises, could suffice to cover the expenses of collection as well as those for operating and maintaining a sanitary landfill and to obtain a positive cash flow, either for municipal investments or for repayment to the central government.
- 4.18 In other smaller cities, the findings show that higher rates than those now charged are needed order to cover the waste collection and final disposal expenses. According to the surveys conducted, however, these rate increases could be feasible, since the present charges are very low (5 to 9 colones a month per family in Santa Rosa de Lima), as compared with the average willingness to pay of 12 colones. For the most part, it may be concluded that: (i) operation of the waste collection services can and must be feasible with specific fees charged for the service. Even in the smallest and most marginal communities where the GTZ solid

waste project is under way, the models used are shown to be financially sustainable; (ii) the initial expenses for technical closure of dumps and construction of sanitary landfills require transfers from the central government to the municipalities, with a counterpart agreed on with each municipality. These municipalities are generally not in a position to take on this burden as a loan; and (iii) operation and maintenance of the sanitary landfills will need to be financed from a combination of sources that include discharge fees and charges for landfill use (tipping fees); a percentage of the collection fees and resources from the municipality's general revenue base, earmarked specifically for this purpose. In some smaller municipalities, the central government will be able to grant an additional transfer for operation and maintenance for a limited period, in exchange for a guarantee that the town will become fully responsible for operation and maintenance within a specified period. In order to ensure compliance with the agreements and goals with the municipalities, the central government will be authorized, under the investment fund Operating Regulations, to utilize the FODES (6%) transfer mechanism and its ability to apply withholdings. The conditions for use of this procedure will be set forth in the contracts signed with each participating municipality.

#### **E. Socioeconomic feasibility**

- 4.19 The program offers extensive socioeconomic benefits, since it lays the foundations for instituting urban pollution control, which in the case of El Salvador has a high social and economic cost. Most gastrointestinal and respiratory diseases are directly associated with air and water pollution; the potable water sources are disappearing due to pollution and overexploitation; the cost of treating potable water is steadily rising; export commodities are less competitive in international markets when they are produced in polluted surroundings; open dumps for solid waste are an annoyance and a focus of dangerous infection, giving the country a negative image and adversely affecting tourism.
- 4.20 These problems cannot be resolved unless steps are taken to support the environmental regulatory framework proposed here. Also, the program's specific investments will improve the trash and garbage collection services and eliminate the open-air dumps, with the result that cities will be cleaner, solid waste pollution will be reduced and the quality of life will be improved.
- 4.21 As noted in chapter I, there is not enough information to quantify pollution's environmental impact let alone to put a price tag on it. That is why in formulating the environmental regulatory framework, in conjunction with physical monitoring of pollution, the following economic studies were included: (i) economic valuation of the impact of air pollution, incorporated into the epidemiological study of the air, using contingent valuation surveys; (ii) economic valuation of the impact of water pollution, integrated into the diagnostic and monitoring study and the epidemiological study; (iii) cost-benefit analysis of the quality standards to be proposed; and (iv) proposal for introducing market mechanisms to achieve

established quality standards. What the programs sets out to do is to stress the importance of introducing economic mechanisms and letting environmental policy be guided by economic efficiency criteria.

- 4.22 The situation of solid waste as it now stands causes considerable environmental damage in terms of polluting rivers, posing a hazard to health, and spoiling the landscape. Through the program's preventive action, such damage would be eliminated, and the costs thus avoided would constitute an economic benefit. Putting a value on such damage calls for a degree of information that is not available, thus limiting the possibility of an accurate cost-benefit analysis.
- 4.23 As part of the program design, a survey was conducted to determine the willingness to pay of a representative population in the cities of San Miguel, La Unión and Santa Rosa de Lima, preceded by surveys of focal groups. The findings point to scant awareness of the environmental implications of final waste disposal, although considerable interest was expressed in improvements in household waste collection service (interviewees mention inefficient pick-up service as the main reason why garbage is dumped into gullies and ravines, in vacant lots, and on city streets). Interest was also displayed in choosing the collection service, with preference being given to collection by a private company rather than the municipality. According to the survey, the average family would be willing to pay an additional 12 or 13 colones on its monthly electricity bill for improved garbage collection service. Those not receiving service at present indicated that they would be willing to pay between 8 and 10 colones.
- 4.24 In addressing final disposal, the economic analysis focuses on identifying cost-effective solutions. To that end, various alternatives were evaluated during the program design phase. The regional landfill solutions were found to be optimal, within certain parameters, depending on whether municipalities were clustered together or far apart and on population size. Regional solutions of this kind will be promoted by the program and are included as an analytical criterion in the Operating Regulations for investments. The technical standards to be prepared by MARN also include an environmental economic study to evaluate the different options in terms of location and size of the sanitary landfills at the national level. This study will serve as an important guide in for reaching decisions on final disposal.

#### **F. Focus on low-income groups**

- 4.25 The program does not include any specific indicators to gauge its impact on poverty reduction or improved social equity. The overall program does not center attention on low-income groups, since the activities and benefits of pollution control would have a favorable impact on society as a whole. The investment component, however, covers small and medium-sized cities; and the eastern zone is considered to be one of the poorest areas in the country.

**G. Risks entailed by the program**

- 4.26 **Social and political acceptance of implementation of the environmental regulatory framework.** With this risk in mind, the program will pay particular attention to consultation methods and consensus-building when formulating and implementing standards. A mandate is already in place for these measures in the form of the Environment Act, and there is growing awareness in civil society with respect to environmental issues.
- 4.27 **Institutional changes.** As the institutional aspects may be changing and dynamic, the program requires a certain degree of flexibility. Consequently, its institutional links have been minimized and specific products necessary in any institutional structure are defined.
- 4.28 **Limited ability of many municipalities to generate income and increase rates, which could prevent them from participating in the program.** As the municipal shortcomings are a given, the program must be framed according to their possibilities and to respond to demand. That is why the investment fund was chosen, with access to it dependent upon applications accompanied by action plans. The scaling of the program is conservative, and based on the assumption that the participants will be restricted to the municipalities that express interest and undertake to ensure that the operations are financially sustainable.

**SUMMARY LOGICAL FRAMEWORK**  
**PROGRAM FOR ENVIRONMENTAL POLLUTION CONTROL IN CRITICAL AREAS**  
**(ES-0074)**

Objectives	Indicators	Means of verification	Assumptions
<b>Goal</b>			
Make El Salvador a country where air and water pollution and solid waste are controlled in urban areas and the population enjoys a healthy, safe environment.	Air and water quality indicators improve over 1998 data. Public health indicators improve over 1998 data (reduction in the incidence of respiratory and gastrointestinal diseases).	Data from air and water monitoring systems Public health statistics Epidemiological studies conducted for monitoring purposes	
<b>Purpose</b>			
Lay the foundations for environmental pollution control through: (i) formulation of a regulatory framework for pollution control in terms of air and water quality and solid waste management; and (ii) specific investments in municipal solid waste management.	<p>The Ministry of the Environment and Natural Resources (MARN) and sector environment units are equipped and their staffs trained to regulate pollution in critical areas under the program.</p> <p>The public and private sectors are using the licensing, auditing, and incentives systems established for environmental management.</p> <p>Accurate, reliable information on environmental quality is periodically disclosed to the public.</p> <p>There are strategies and action plans for each of the critical areas with specific time frames for achievement of the quality standards established.</p> <p>The investments in municipal solid waste management are made according to the integrated solid waste management policy.</p> <p>Good quality garbage collection services and safe sanitary landfills are operating, and in general cities are cleaner and healthier.</p>	<p>MARN environmental impact assessment system</p> <p>Licensing and auditing system records</p> <p>Quality audits on environmental information disclosure</p> <p>Annual reports of MARN and other sector environment units</p> <p>Independent evaluations of environmental quality in the country</p> <p>Independent evaluations of investments in solid waste and public opinion polls</p>	<p>MARN and the municipalities continue to receive political support and adequate budgetary resources to perform their regulatory functions.</p> <p>These institutions are strengthened in terms of professional staffing, and a sustainable income generation mechanism has been established to finance their activities for pollution control and operation and maintenance of the investments in solid waste management in the municipalities.</p> <p>The program objectives and goals have been satisfactorily achieved.</p>

Objectives	Indicators	Means of verification	Assumptions
<b>Component 1: Support for the environmental regulatory framework</b>			
<p>a. <u>Air quality</u> Develop monitoring capacity in the main urban centers, process and disseminate information, draft quality standards, formulate a strategy and investment plan to reduce pollution and introduce economic instruments for quality management.</p> <p>b. <u>Water quality</u> Complete monitoring capacity at the national level, process and disseminate information, determine and prioritize water uses for each receiving body, formulate quality standards, prepare a strategy and investment plan to reduce pollution, and introduce economic management instruments.</p> <p>c. <u>Solid waste</u> Formulate quality standards for proper treatment and safe final disposal of municipal, toxic, and hospital solid waste and promote activities for safe treatment and disposal in hospitals and health centers.</p>	<p>Air quality monitoring system with fixed and mobile sources in operation; data on air quality processed and disseminated; air quality index (AQI) published periodically; epidemiological and economic study completed and disseminated; air quality policy and standards approved; environmental licensing and auditing systems in operation, with the necessary record-keeping; 10-20 experts in the country trained in air quality management; and pollution reduction strategy discussed nationwide and investment plans formulated.</p> <p>Water quality monitoring system in operation; data on water quality processed and disseminated; water quality index published periodically; study on aquifer assessment and survey and review of sources of pollution completed; epidemiological and economic studies completed and disseminated; water quality policy and standards for each type of receiving body approved; environmental licensing and auditing systems in operation, with the necessary record-keeping; 20-40 experts trained in water quality management; and water pollution abatement strategy and plan discussed nationwide and investment plans formulated.</p> <p>Survey of toxic and hazardous waste completed; policy, technical standards and regulations approved for comprehensive management of municipal, toxic, hospital, and hazardous solid waste; collection and safe final disposal of hospital waste in San Salvador, San Miguel, Santa Ana and La Unión, in accordance with environmental regulations.</p> <p>25-35 microenterprises organized for the collection of municipal solid waste.</p> <p>Environmental auditors and experts certified by MARN.</p>	<p>Information generated by the monitoring systems and its analysis</p> <p>Standards established</p> <p>Performance evaluations</p> <p>Budget and staffing allocated</p> <p>Contracts for the provision of services with quality and coverage goals</p> <p>Independent evaluations and audits</p> <p>Studies and guidelines published</p>	<p>All the activities programmed under the program are carried out.</p> <p>There is political support for enactment of the standards.</p> <p>There is social acceptance.</p> <p>The private sector expresses interest in participating.</p>

Objectives	Indicators	Means of verification	Assumptions
<b>Component 2: Support for municipal solid waste management</b>			
<p>a. <u>Municipal technical assistance, education and institutional strengthening</u></p> <p>Provide efficient technical assistance to the municipalities participating in all areas that will help ensure that solid waste management is efficient, financially and environmentally sustainable and socially viable; educate the public and strengthen municipal management.</p> <p>b. <u>Investments in collection and final disposal and pilot projects for recycling and composting</u></p> <p>Increase the coverage, quality, and efficiency of garbage collection services in the participating municipalities; eliminate open-air dumps and management environmentally safe sanitary landfills; promote financially viable recycling and composting activities.</p>	<p>Specialized advisory services in solid waste management produce procedures and technical guidelines to support the municipalities. Each participating municipality has been informed of and trained in use of the guidelines.</p> <p>MARN produces the guidelines for consultation and environmental assessment to support the municipalities. The participating municipalities have been advised of and trained in the procedures. Environmental and social data from each municipality has been collected and processed and entered into the environmental information system.</p> <p>Action plans and applications are approved, with all the eligibility and viability criteria fulfilled, for San Miguel, Santa Ana, Sonsonate, La Unión, Santa Rosa de Lima, and 20-25 municipalities in the eastern and western regions of the country. Campaigns for consultation, awareness and education are completed in each municipality. Operational management in each participating municipality is strengthened, and all the staff in charge has been trained.</p> <p>At least 85% of garbage collection is privately managed in municipalities with over 100,000 inhabitants and at least 35% in the remainder. Door-to-door collection coverage is 90% in all the municipalities and public acceptance of service quality is at least 80%. Recycling and composting activities have been successfully tested in each of the project areas.</p> <p>All open-air dumps are eliminated; sanitary landfills are operating at the municipal or regional level, with environmental certification</p>	<p>Technical standards established</p> <p>Records of technical assistance, promotion, and education events</p> <p>Independent evaluations and consultations of municipal authorities on the quality of the technical assistance</p> <p>Performance evaluations</p> <p>Budget and staffing allocated</p> <p>Service delivery contracts with the private sector, indicating quality and coverage goals</p> <p>Community surveys and consultations</p> <p>Independent evaluations and audits</p>	<p>There is demand and interest on the part of the municipalities.</p> <p>The central government is committed to providing support for the municipalities.</p> <p>All the activities called for under the program are carried out.</p> <p>There is political backing for the enactment of solid waste regulations.</p> <p>There is social acceptance.</p> <p>The private sector expresses interest in participating.</p>



Objectives	Indicators	Means of verification	Assumptions
	and licensing and periodic inspections. Each municipality has a trained solid waste unit and maintains separate accounts for the solid waste management services. Each municipality is in compliance with the financing conditions. The collection services are 100% covered by the rates charged by year 5. Operation and maintenance of a landfill has funding allocated and ensured from a percentage of the collection fees, tipping fees, and an additional percentage charge on the general income of each municipality and annual 6% transfers from the central government.		

**El Salvador**  
**Program for Environmental Pollution Control in Critical Areas**  
**(ES-0074)**

Procurement schedule (in thousands of US\$)			
Category	Amount	Type of procurement	Date
<b>1. CONSULTING SERVICES</b>			
<b>A. Coordination and administration</b>			
Consulting services for coordination	480	Local competitive bidding	Year 1
Specialized technical advisory services	440	International competitive bidding	Year 1
<b>B. Component 1: Support for environmental regulatory framework</b>			
<b>Air quality</b>			
Specialized advisory services	355	International competitive bidding	Year 1
Studies	282	International competitive bidding	Year 1
Action plans	450	International competitive bidding	Year 2
Education and promotion	50	Limited local bidding (b)	Year 2
Training	60	Limited local bidding	Year 1
<b>Water quality</b>			
Specialized advisory services	410	International competitive bidding	Year 1
Studies	600	International competitive bidding	Year 1
Protection of aquifers	1140	International competitive bidding	Year 2
Action plans	900	International competitive bidding	Year 2
Education and promotion	50	Limited local bidding	Year 2
Training	50	Limited local bidding	Year 1
<b>Hazardous waste</b>			
Specialized advisory services	410	International competitive bidding	Year 1
Studies	100	International competitive bidding	Year 1
Action plans	100	International competitive bidding	Year 2
Education and promotion	50	Limited local bidding	Year 2
Training	50	Limited local bidding	Year 1
<b>C. Component 2: municipal solid waste management</b>			
Technical assistance, contractors	4215	International competitive bidding	Year 1
Advisory services, institutional strengthening	150	Local competitive bidding (a)	Year 1
Training (packages)	250	Local competitive bidding	Year 2
Education and awareness (packages)	290	Local competitive bidding	Year 2
<b>2. PROCUREMENT OF GOODS</b>			
<b>A. Coordination and administration</b>			
Office equipment	131	Limited local bidding	Year 1

<b>B. Component 1: Support for environmental regulatory framework</b>			
<b>Air quality</b>			
Monitoring system	1740	International competitive bidding	Year 1
Information system	100	Limited local bidding	Year 2
<b>Water quality</b>			
Monitoring system	260	International competitive bidding	Year 1
Information system	100	Limited local bidding	Year 2
<b>Hazardous waste</b>			
Information system	50	Local competitive bidding	Year 2
<b>C. Component 2: municipal solid waste management</b>			
Equipment and computers	176	Local competitive bidding	Year 1
<b>3. WORKS</b>			
<b>A. Component 1: Support for environmental regulatory framework</b>			
Management and disposal of hospital waste	1400	International competitive bidding	Year 3
<b>B. Component 2: municipal solid waste management</b>			
Collection systems	1388	(c)	Year 2
Final disposal	11,063	(c)	Year 2
Recycling	335	(c)	Year 3
Composting	500	(c)	Year 3

- a. Open local competitive bidding for the procurement of goods in amounts between US\$150,000 and US\$249,999; for construction contracts between US\$250,000 and US\$999,999; and for consulting services between US\$100,000 and US\$199,999.
- b. Limited local bidding for goods in amounts below US\$150,000; for construction contracts below US\$250,000; and for consulting services below US\$100,000.
- c. Bank procedures will be followed for these components. International competitive bidding will be required for the procurement of goods in amounts equal to or greater than US\$250,000 and for construction contracts equal to or greater than US\$1 million. For consulting services, international competitive bidding will be required for contracts equal to or greater than US\$200,000. For amounts below these thresholds, the procedures indicated in footnotes (a) and (b) above will be followed.