

AGRIBUSINESS REENGINEERING PROJECT

(ES-0119)

EXECUTIVE SUMMARY

Borrower:	Republic of El Salvador		
Executing agency:	Ministry of Agriculture (MAG)		
Amount and source:	IDB (Ordinary Capital):	US\$	25,000,000
	Local:	US\$	6,250,000
	Total:	US\$	31,250,000
Financial terms and conditions:	Amortization period:	25 years	
	Grace period:	4 years	
	Disbursement period:	4 years	
	Interest rate:	variable	
	Inspection and supervision:	1%	
	Credit fee:	0.75%	
	Currency:	U.S. dollars from the Single Currency Facility of the Ordinary Capital	
Objectives:	The objective of the project is to promote higher incomes from agricultural and forestry activities by developing greater efficiency and higher value added. This basic objective will be pursued by strengthening the supply of key public goods and services, fostering strategic alliances between the public and private sectors, and rebuilding irrigation and drainage infrastructure adversely affected by the earthquakes in early 2001.		
Description:	The project has three components: (i) support services for agricultural and forestry production, including the following subcomponents: (a) information system, and (b) phytosanitary protection and food safety; (ii) rehabilitation, reconstruction and transfer of irrigation and drainage systems and crop diversification; and (iii) system of alliances for agricultural and forestry technology.		
Conceptualization of the project:	The conceptualization of the project is based on recognizing the agricultural sector's potential to contribute to economic growth. This potential is ascribable to the availability of natural resources and labor that may be used to improve and diversify agricultural production in the country, transforming it into higher yielding and more competitive crops. To be harnessed, this potential must go in hand with timely distribution of quality information, a modern system of plant health protection and food safety, national capacity		

to generate and disseminate new technology for production of crops and livestock raising using the best technology available, and improvements in the sector's infrastructure works themselves, particularly irrigation and drainage. The project is designed to provide these support services as a means of bringing about the technical modernization of the sector and expanding production potential through the restructuring of agribusiness. This concept of restructuring is understood by Salvadoran producers, potential beneficiaries of the project, who at different stages of project preparation indicated the need to have access to technology and production support services that enables them to modernize.

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

The objectives of the Bank's country strategy—as contained in the country paper of 13 December 2000 (GN-2121-1)—that refer specifically to the rural economy and that will be supported by this project are: to diversify agricultural production; to improve access to financing; to enhance the productivity and competitiveness of the agricultural sector; to promote producers' associations and job creation; and to invest in technology, basic infrastructure and sustainable management of natural resources.

In an effort to promote policy dialogue and highlight promising opportunities in the rural economy, the Bank last year conducted an in-depth analysis of the growing disparity between El Salvador's rural and urban sectors. This effort produced a multisector study that identified institutional, legal and physical obstacles facing development of the rural economy, and proposed policy and investment options for developing its potential.¹ The Bank and the Government of El Salvador reached a consensus on the priorities proposed in the report, and agreed to strengthen support for infrastructure, human resources and the institutional and economic policy frameworks in ways that would stimulate broader economic opportunities for rural people. In terms of the agricultural sector, this consensus focused on the need to accelerate the process of agricultural transformation towards more diversified output and higher value added, throughout the agricultural chain.

Other Bank projects in support of the rural economy of El Salvador include: the Multiphase Sustainable Rural Roads Program (ES-0129) approved in April 2001, and the Local Development and Local Infrastructure Project (ES-0120) currently in preparation.

**Environmental
and social review:**

The project will have a positive social impact that will be felt in an increase in economic and social well-being, and in the health of producers and consumers. Special attention will be given to training women in crop management, irrigation and marketing. This last area

¹ “Unlocking the Economic Potential of the Rural Sector in El Salvador”. Report of the IDB/RE2 Study Group, May 2000

has been a traditional sphere for women in Salvadoran rural society. The intention is to improve the well-being of women in rural society and enhance their opportunities for income.

A complete Environmental and Social Management Plan (PMAS) has been prepared, as part of the project's Operating Regulations. This PMAS includes prevention and mitigation measures consistent with the country's environmental legislation, in particular as it relates to rehabilitation projects for irrigation and drainage systems, where the existing domestic legal framework permits adequate management of natural resources. The PMAS contains activities to avoid unsound soil management practices and to promote the proper use of agrochemicals, prevention and mitigation measures for reconstruction and rehabilitation work, sound management of water resources, good productive practices with irrigated crops, and measures to reduce the disparity in participation by women and minority groups. An environmental monitoring program has also been designed, to be supervised by a full-time environmental officer attached to the Ministry of Agriculture Project Coordinating Office. The costs of the PMAS are included in the project budget (see paragraph 3.16).

Benefits:

By producing basic information on climate, output, prices, farming practices, productive processes and agricultural investment opportunities and alternative uses of woodlands and forestry products, the project will contribute externalities in support of production, encourage competition and make markets operate more transparently. Strengthening the phytosanitary protection and food safety system will help to improve the sanitary quality of the country's agricultural output. As well, food safety will be improved through the adoption of good practices for processing raw materials in the food industry.

The benefits of the component for managing irrigation and drainage systems and crop diversification, in terms of increasing the value of agricultural output, will result from expansion of the area under irrigation, land improvement through leveling, more intensive use of land and diversification into highly profitable crops, reduction in the exploitation of marginal, higher-altitude lands and the development of sustainable agriculture. The transfer of irrigation system management to local associations will improve administration of irrigation and drainage systems and will encourage private investment, thereby achieving a better allocation of the economy's resources.

The principal beneficiaries of the efforts to generate and transfer technology will be small and medium-sized producers with productive potential.

Risks:

The principal risk associated with the information system lies in the capacity of the Ministry of Agriculture to maintain these services on a sustainable footing, once the project is completed. To mitigate this risk, fees will be established for the services, and the private sector will be involved in providing services.

Success in strengthening the phytosanitary and food safety system will depend on the capacity of responsible State bodies to enforce the standards necessary for proper functioning of these areas. The project calls for activities that strengthen their understanding of the importance of compliance with these rules, and their impact on public health and on domestic and international markets.

There is a risk that the water users' associations that are to benefit from the program will not be able to manage the systems properly, and this could lead to deterioration of the infrastructure rehabilitated under the project. To mitigate this risk, the associations will receive technical assistance and training in irrigated farming and in operation and maintenance of the systems. As well, the agreement to be signed by the Ministry of Agriculture with each association, for conducting the rehabilitation work and transferring administration to the association, will include a provision committing each association to charge fees and set quotas that will cover the cost of maintaining the systems, and will include a clause releasing the government of any obligation for further investment in rehabilitation after the hand-over.

The principal risk to the technology subcomponent is the possibility that beneficiaries will fail to respond, because of the uncertainty of the market for their services, reflecting the traditional approach whereby technology services were offered free of charge by the government. The design of the system, which is based on market demand, will mitigate this risk.

**Special
contractual
clauses:**

- (a) The first disbursement will be subject to the following conditions, which must be met to the Bank's satisfaction:
 - (i) evidence that the Operating Regulations have been prepared in accordance with the terms and conditions agreed on with the Bank, and that they are in force (paragraph 3.4); (ii) hiring of the Project Coordination Office director, in accordance with the terms of reference agreed with the Bank (paragraph 3.1); and (iii) creation of the Technical Execution Units within the Ministry of Agriculture (paragraph 3.3).
- (b) In addition to the conditions contained in paragraph (a) above, the first disbursement for the establishment of and support for

the SINALIT (subcomponent (a) of Component III) will be conditional on the presentation, to the Bank's satisfaction, of the findings of the study on the long-term institutional and financial sustainability of the SINALIT (paragraph 2.31).

- (c) In addition to the conditions contained in the preceding paragraphs (a) and (b), the first disbursement of resources for the competition fund for technology generation and transfer (subcomponent b) will be conditional on identifying—to the Bank's satisfaction and as a result of the establishment of the SINALIT—priorities by production heading, using a methodology agreed on with the Bank (paragraph 2.28).

Recognition of expenses and advance of resources:

Notwithstanding the provisions of the previous paragraph, after the loan contract comes into force, and once the conditions precedent to the first disbursement have been met, as stipulated in Article 4.01 of the General Conditions, the Bank may disburse up to the equivalent of US\$200,000 so that the Ministry of Agriculture can begin the activities needed to comply with the special contractual conditions (paragraph 3.24).

The Bank may recognize as a charge to the local counterpart contribution amounts expended by the Ministry of Agriculture since 1 January 2001, up to the equivalent of US\$1 million, for installation of the information centers and reconstruction of irrigation infrastructure, provided it has followed procurement procedures substantially similar to those of the Bank (paragraph 3.23).

Poverty-targeting and social sector classification:

This operation does not qualify as a social equity-enhancing project, as described in the key objectives for Bank activity contained in the report on the Eighth Replenishment (document AB-1704).

Exceptions to Bank policy:

None

Procurement:

Goods and services will be procured in accordance with Bank policies. International competitive bidding will be followed for the procurement of goods for the equivalent of US\$250,000 or more, and for contracting works where the amount is US\$1.5 million or more. In the case of consulting services, contracts for amounts exceeding the equivalent of US\$200,000 will be submitted to international competition. Procurement transactions for less than these amounts will be subject to domestic legislation, as long as this is consistent with applicable Bank principles (paragraph 3.25).

I. FRAME OF REFERENCE

A. Socioeconomic framework of the agricultural sector

- 1.1 In 1989 El Salvador entered upon a process of economic stabilization and structural adjustment, one that it has pursued virtually without change until today, with substantially satisfactory results for the Salvadorian people. During the 1990s, the economy grew at an average real rate of 5.1% annually, the fiscal deficit was reduced, net international reserves multiplied (from US\$400 million in 1990 to US\$935 million in 1995, and to US\$2 billion in 2000), the inflation rate declined substantially, and urban poverty was significantly reduced.
- 1.2 Despite this robust economic performance during the past decade, the country's agricultural sector has lagged behind, growing at an average annual rate of barely 1.2%. As a result, the agricultural sector's share of GDP declined from 17.1% in 1990 to only 13% in 1999, and agricultural output per person employed is lower than average output per capita in other sectors of the economy. This performance has been one of the principal determinants of persistent poverty in rural areas, and the lack of opportunity for the 50% or so of the population residing in these areas. As a result, the majority of poor Salvadorians live in rural areas, and while urban poverty declined during the 1990s, the level of rural poverty has remained unchanged.
- 1.3 The Salvadorian agricultural sector is characterized by very low productivity levels. About 35% of the country's workforce is employed in agriculture, but it produces only 13% of GDP. There is little crop diversification in comparison with the agricultural potential. Most of the contribution to GDP from irrigated agriculture is generated by traditional crops: rice, sugar cane, corn and fodder. And although higher value-added crops, produced under irrigation in intensive or organic systems (primarily fruits and vegetables) are expanding rapidly, their share of agricultural GDP is relatively low.
- 1.4 The low productivity and poor performance of the agricultural sector has led to continuous expansion of the farming frontier, and the migration of poor rural families into marginal lands. In particular, there is an alarming tendency to increase the production of basic foodstuffs (corn and beans) by moving on to ever higher lands, where slopes are steep and soils are fragile, instead out of trying to improve productivity on existing farmland. In fact, the Salvadorian farming frontier has already been exhausted, and low-income rural dwellers have settled on marginal hillsides, where the soil becomes exhausted after a few years. This pattern of settlement is destroying the vegetation cover of the country's watersheds and basins, and is causing damage downstream, within an unsustainable and low-yield system of exploitation.
- 1.5 The earthquakes that struck El Salvador at the beginning of 2001 caused the greatest damage in the country's rural areas, exacerbating even further the

productive and social deficit facing those areas: there was destruction or damage to irrigation systems, dwellings, roads, water and sewer systems, productive infrastructure and agricultural output. Damage to traditional farming activities affected both areas under cultivation and agricultural support infrastructure, including the devastation of granaries, silos, refrigeration units, storage sheds, boilers, laboratories, holding tanks, equipment and workshops. It is estimated that more than 40,000 farming families were directly affected by the earthquakes.

1.6 Behind the low productivity and lack of competitiveness of the Salvadorian farming sector lies a series of factors that have frustrated its development, including the following:

- a. Current systems of commercial information and sector assistance, both within the Ministry of Agriculture (MAG) and in the producers' and agribusiness services, are extremely weak and incapable of supporting a modern, commercial, export-oriented agriculture. The MAG produces much information, but it is of varying quality and poorly distributed. There are no complementary private systems that might help overcome some of the shortcomings in the public service. Access to technology, communications and information is severely limited in some areas, and nonexistent in others. The capacity of farmers and small-scale entrepreneurs to obtain information and use it effectively is constrained by the low level of education. Illiteracy indicators are high in El Salvador: 20% at the national level, and 32% in rural areas.
- b. The public system for generating and transferring technology has failed to respond to producers' needs, and service is inadequate, costly and dependent on public budgets and external donors, a situation that has provided little incentive for private suppliers to enter the market. There has been no systematic, scientific mechanism for prioritizing areas of crop research. For many years, technological research and development policy has assigned high priority to products of low commercial value, encouraging the use of predetermined technology packages. The services do not always correspond to producers' needs, they do not have the flexibility to respond to technological change, nor to changes in the patterns of demand on domestic and international markets; and they make no room for producers to participate and coordinate their efforts in the process of generating and transferring technology.
- c. The animal and plant health system in El Salvador requires urgent reform to meet the challenges and demands of ensuring sound phytosanitary conditions and food safety. The country's regulatory framework and its institutional capacity are not conducive to the production and marketing of products at acceptable standards of animal and plant health. With respect to food safety, the country has critical shortcomings that pose a risk to public health and have a negative impact on the development of international markets for Salvadorian agricultural products. The country's health authorities lack the tools to implement

a food safety system. The General Directorate of Plant and Animal Health of the MAG has no provision in its structure for food safety supervision.

- d. At the present time, irrigated farming produces approximately 11% of agricultural GDP, but occupies less than 5% of the 744,000 hectares under cultivation, which means that most of the country's high-potential land lacks irrigation and drainage infrastructure. Yields therefore fall far short of their potential, which should be sufficient to support two or three harvests a year, produce higher incomes, and reduce rural poverty. Most of the existing irrigation and drainage systems are in need of repair because of faulty maintenance, and their condition has deteriorated in the wake of the earthquake damage of January 2001. There are also serious shortcomings in the system maintenance equipment. Much of the equipment is in poor condition or obsolete, and requires either major repairs or replacement. Irrigation and drainage systems under private management need to be rehabilitated to ensure better use and management of irrigation water.
- e. Agricultural marketing infrastructure and post-harvest management is currently inadequate to guarantee sustainable output, affecting the quality of the goods offered to wholesalers and industry and increasing pollution and handling problems with solid organic wastes. The dispersed pattern of warehousing, subject to no standards or consistency, makes it difficult for markets to price products transparently. Shortcomings in the classification, management, handling, packing, packaging and transportation of output impede the generation of value added. The excessive involvement of intermediaries in the marketing chain translates into low prices to producers.
- f. The real appreciation of the exchange rate over several years affected the competitiveness of the Salvadorian farm sector. The Monetary Integration Law, which came into force on 1 January 2000, introducing the U.S. dollar as legal currency, will help achieve greater stability in the real exchange rate, reduce interest rates and inflation, while encouraging higher domestic savings and attracting additional foreign investment. All of this should support competitiveness improvements in the farming sector.
- g. The political crisis and the armed conflict of the 1980s fundamentally altered landholding patterns and caused a severe breakdown in the links between agriculture, agroindustry and the national food system, i.e. those links that sustained traditional commercial farming. As a result, today most farmers are working very small plots, producing low-value crops, they have little education and are dependent on costly intermediation systems, with numerous marketing bodies.

B. The institutional framework for the sector

- 1.7 The Ministry of Agriculture (MAG). The MAG consists of four centralized operating units: the General Directorate of Agricultural Economics (DGEA), the General Directorate of Plant and Animal Health (DGSVA) the General Directorate of Renewable Natural Resources (DGRNR) and the General Directorate of Fisheries Development (CENDEPESCA). The MAG also oversees five decentralized institutions, including the National Center for Agricultural and Forestry Technology (CENTA) and the Salvadorian Land Reform Board (ISTA).
- 1.8 Organization of national farm support information systems. The work of generating and collecting the major information products of the MAG—market news and agricultural statistics—is the responsibility of the DGEA. Other units of the MAG (DGSVA, DGRNR, and CENDEPESCA) and CENTA contribute specialized information. In addition, there is a strategic guidance and markets service, which includes analytical reports on policy and sector developments, managed by the Office of Strategic Direction, as well as a fairly limited service run by the Agribusiness Office, to provide practical information to investors, producers and intermediaries that make up the agribusiness chain.
- 1.9 Currently the MAG has several groups of computers that operate in a network, but they have no Intranet system that would allow for sharing of documents and online collaboration. Most officials at central headquarters use e-mail, with slow connections. Few extension workers have access to computers, and even fewer to the Internet. The MAG site on the Internet is very poor, and bears no relationship to the processes for generating information. The private sector offers limited information locally, online. It is now being strengthened by the Support Program for Agribusiness Competitiveness, financed by the Multilateral Investment Fund (ATN/ME-7204-ES) and executed by the Agricultural and Agribusiness Chamber of El Salvador. This program is producing, processing and disseminating information complementary to that called for in this project.
- 1.10 The country's phytosanitary and food safety system involves shared responsibilities between the Ministry of Agriculture, the General Directorate of Animal and Plant Health (MAG-DGSVA), the Ministry of Public Health and Social Action (MSPAS-Food), the Ministry of Economic Affairs, the Consumer Protection Directorate (MINEC-DPC), and the Ministry of Environment and Natural Resources (MARN). The DGSVA has phytosanitary responsibility for primary output and farm inputs (agrochemicals, veterinary and pharmacological products). The MSPAS has supervisory responsibility over the food conversion industries, whatever their specialty, and exercises sanitary control over commercial food establishments (hotels, restaurants, wholesale and retail establishments) and over imported foods in general (including agrifood and others). The MINEC-DPC is responsible for verifying compliance with commercial standards through application of the

Consumer Protection Act. The MARN has responsibility for biodiversity, environmental preservation and water resources.

- 1.11 Organization of irrigated agriculture. The institutional structure for managing irrigation water is defined conceptually by the Irrigation and Drainage Act, which designates the MAG as the competent authority and establishes irrigation districts as technical and administrative units under the MAG, for managing large irrigation and drainage systems. The law allows for users to organize themselves into water users' associations, within the irrigation districts or in other areas under irrigation where users have a common source of supply or their properties are adjacent, and allows such associations to form federations or confederations. This law provides no incentives to encourage private investment in irrigation, or to foster the efficient use of the resource. A new Water Act is currently in the draft stage. This draft represents a major advance over the existing Irrigation and Drainage Act, and incorporates the basic principles of greater efficiency in the use of water resources by the private sector, and more streamlined and efficient management by the State. In turn, it authorizes a shift in the government role towards that of providing guidance and regulating use of the resource, instead of being the direct supplier of water services.
- 1.12 On the basis of the Water and Drainage Act, which calls for a minimum State share of 40% in investments in irrigation and drainage systems, State investments have been directed towards constructing large-scale irrigation works (projects covering more than 1000 hectares), in irrigation districts that cover a total of 8,615 hectares with irrigation infrastructure; construction of 57 small-scale projects for the private sector, primarily in the hands of agrarian reform cooperatives and water users' associations, covering an area of more than 3000 hectares. In addition, the public sector has undertaken a series of preinvestment studies for projects involving small, medium and large-scale works covering an area of 19,000 hectares.
- 1.13 The irrigation and drainage subsector currently has approximately 7,300 users and 35,000 hectares with irrigation and drainage infrastructure. The public systems are under the legal jurisdiction of the MAG, and their transfer to operation and maintenance by users organized in water users' associations would be formalized under the project. The private systems are of three kinds: water users' associations, agrarian reform cooperatives, and individual owners. To date, a total of 39 private sector associations have been organized by the MAG, covering an area of 9,022 hectares; they have 1,906 members, with average land holdings of 4.7 hectares. The project's Operating Regulations contain a socioeconomic categorization of producers in each district.
- 1.14 The El Salvador Federation of Water Users' Associations (FEDARES) is the only such federation now in operation in the country, and was legally established in 1999. The Federation of Water Users' Associations of the Rio Sensunapán Valley (FARCRIOS) is currently in the process of organizing itself legally. FEDARES is

composed of the four associations for the public irrigation districts (Zapotitlán, Atiocoyo Norte, Atiocoyo Sur and Lempa-Acahuapa), which cover approximately 40% of the country's water users. FEDARES has focused on diversification and marketing of irrigated crops, providing inputs and training for water users' associations. FEDARES has emerged as a significant voice on behalf of users and their associations. It is also extending its services to individuals or associations outside the organization.

- 1.15 Organization of technology generation and transfer. In 1977, the National Agricultural Research Program was reorganized as the National Center for Agricultural and Forestry Technology (CENTA). Subsequently, a law of 11 February 1993, converted it into an autonomous institution, responsible for agricultural and livestock research and technology transfer. Under that law, CENTA has the mandate to provide these services to small and medium-scale producers. The services are limited to those crops that form the nutritional base for the majority of the population, and they must be provided free of cost to beneficiary producers. Commercial producers of nontraditional or export crops contract technical assistance directly with private institutions. The CENTA is not responsible for certifying seeds or for producing commercial seed.

C. The country's agricultural strategy

- 1.16 The current government, elected in 1999, assumed power with a clear mandate to reduce the growing gap between urban and rural living standards. Specific recommendations for the agricultural sector were announced in May 2000, in a document entitled *Agricultural Policy: National Agrarian Management 1999-2004*. This policy reflects the viewpoint of the Government of El Salvador that the private sector must play a leadership role in the process of technological innovation and productive transformation, while stressing the role of the public sector in facilitating the emergence of a competitive system of agribusinesses within a context of better natural resource management. From this perspective, the MAG serves as regulator of the sector and provides strategic services, which are considered as public goods, or as essential goods that the private sector would not be interested in offering.
- 1.17 In the wake of the 2001 earthquakes, the government developed a Strategic Emergency and Reconstruction Plan for the Agricultural and Rural Sector in order to help rural producers recover quickly, and so prevent further declines in agricultural output and in incomes for the rural poor. The priority areas of this plan include the repair and reconstruction of key irrigation and drainage systems and basic agricultural infrastructure, to prevent large-scale losses in areas under irrigated elevation, and to provide support for agrifood production, areas that will be strengthened under this project.

D. Bank strategy in the sector

- 1.18 The project will contribute to specific objectives in the Bank's strategy for El Salvador—as contained in the country paper of 13 December 2000 (document GN-2121-1)—in support of the following priorities: to reactivate economic growth and strengthen competitiveness, to promote private sector participation, productive investment, technological modernization, and environmentally sound productive practices; and to reduce poverty and build human capital by increasing opportunities for rural economic development. The objectives of the Bank's country strategy that relate specifically to the rural economy and that are supported by this project are: to diversify agricultural production; to improve access to financing; to enhance the productivity and competitiveness of the agricultural sector; to encourage producers' associations and employment creation; and to invest in technology, basic infrastructure and sustainable management of natural resources. Other Bank projects in support of the rural economy include the Multiphase Program for Sustainable Rural Roads (ES-0129) approved in April 2001, and the Local Development and Local Infrastructure Project (ES-0120), currently in preparation.
- 1.19 In an effort to promote policy dialogue and highlight promising opportunities in the rural economy, the Bank recently conducted an in-depth analysis of the growing disparity between El Salvador's rural and urban sectors. This effort produced a multisector study that identified institutional, legal and physical obstacles facing development of the rural economy, and proposed policy and investment options for developing its potential². The Bank and the Government of El Salvador reached a consensus on the priorities proposed in the report, and agreed to strengthen support for infrastructure, human resources and the institutional and economic policy frameworks in ways that would stimulate broader economic opportunities for rural people.
- 1.20 In terms of the agricultural sector, this consensus focused on the need to accelerate the process of agricultural transformation towards more diversified output and higher value added, throughout the agricultural chain. This will require improved mechanisms for identifying new markets, both domestically and abroad, new production technologies, better protection against threats to animal and plant health, food safety, and better management of production, marketing and basic infrastructure, in particular the efficient use of water resources.

E. Experience of the Bank and other donors

- 1.21 In 1984, the IDB approved a loan of US\$12.9 million for strengthening the CENTA, of which 40% was canceled at the end of the program in 1989. The major

² "Unlocking the Economic Potential of the Rural Sector in El Salvador". Report of the IDB/RE2 Study Group, May 2000.

problems in executing the project were: (i) lack of adequate financial control, (ii) poor management of goods and materials; (iii) failure to deliver management information to the MAG; and (iv) poor coordination between the CENTA and other institutions involved with the issue. In conclusion, it was indicated that any future support to the institution would have to provide for improvement in these areas.

- 1.22 The Bank approved a new project in the agriculture sector in 1987, with a loan of US\$14.5 million for the Agricultural Development Project for Lempa-Acahuapa. The project included: financing for the district's irrigation infrastructure, which was fully executed after lengthy delays at the outset; generation and extension of agricultural technology, which could not be executed for lack of an appropriate institutional scheme; and a program of technical assistance and training for users in the area of irrigated farming and marketing. This technical assistance was fully executed, but the activities were conducted long before the irrigation infrastructure was in place, which meant that its practical impact was limited.
- 1.23 The MAG is currently executing the El Salvador Environmental Program (PAES), with IDB financing (86/OC-ES) approved in 1996. The MAG has complied with all the contractual conditions in terms of submitting information and documentation under the project.
- 1.24 In 1993, the World Bank approved a loan of US\$40 million in support of the Institutional Reform Program for the Agricultural Sector (PRISA). This program includes research and agricultural extension activities, in addition to the reform of the sector's major institutions. Of this total, US\$39.9 million was allocated to strengthening technology research and extension activities through the CENTA, and to improving the institution's physical infrastructure and equipment. At the present time, this program is in the final phase of execution. The results of the program have been mixed, and startup delays compromised the prospects for achieving its objectives. Nevertheless, certain institutional improvements were successfully incorporated into the MAG, and there has been a major shift of orientation within CENTA. These changes include the development of a technical information and research strategy based on the creation of technology innovation committees (CITs), consisting of representatives of civil society organizations and local governments in areas of high agricultural potential. These CITs engage primarily in technological innovation activities, based on consultation with participants, and are helping to introduce a market perspective to the agricultural chain. The CITs have become important players in designing the technology component of this new project.

F. Project concept

- 1.25 The project was conceived in recognition of the agricultural sector's potential to contribute to economic growth. This potential arises from the availability of natural resources and manpower, which can be used to improve and diversify the country's

agricultural output, and to convert it to crops that are more profitable and competitive. If this potential is to materialize, the sector's technical capacity will have to be modernized. Such modernization requires that Salvadorian producers have the capacity to take sound decisions in terms of adopting technologies, diversifying crops, using natural resources and allocating agricultural resources efficiently. This concept of conversion is well understood by the project's potential beneficiaries, Salvadorian farmers, who on various occasions during project preparation expressed the need for technological and productive support services to help them with this modernization.

- 1.26 One essential element of agricultural transformation is to develop mechanisms to facilitate the production and timely distribution of high-quality information for producers, the authorities, and the other main players in the agricultural sector. Another fundamental element is the country's capacity to generate and disseminate new technology for crop and livestock production and to select the best technologies available, in order to respond successfully to world market opportunities. The viability of many agricultural businesses in El Salvador depends on improving the sector's infrastructure, particularly irrigation and drainage, since yields from irrigated land are much higher than those from dryland farming. The project is designed to offer these support services, to modernize the sector technically, and to raise potential output through conversion to agribusiness.
- 1.27 The design of the project draws upon lessons learned in previous projects in the sector. Specialized private-sector entities, both domestic and international, will assist in the generation and transfer of technology and the government will retain its role in regulation, setting standards and policies for the sector's development, while producers, based on market information, will be involved in identifying areas for research, and making their demands known through the CITs. Rehabilitation work on irrigation infrastructure will be targeted at systems that have users' associations that are institutionally ready to take over the transferred systems and operate them on a self-sufficient basis. Training and technical assistance in irrigated farming and marketing will be provided to water users' associations at the same time as the infrastructure is being rehabilitated.

II. THE PROJECT

A. Objectives and description

- 2.1 The objective of the project is to promote higher incomes from agricultural and forestry activities by developing greater efficiency and higher value added. This basic objective is expected to be reached by strengthening the supply of key public goods and services and fostering strategic alliances between the public and private sectors, while rebuilding irrigation and drainage infrastructure adversely affected by the earthquakes in early 2001.

B. Components

- 2.2 The specific project activities are structured in three components: (i) support services for agricultural and forestry production; (ii) rehabilitation, reconstruction and transfer of irrigation and drainage systems and crop diversification; and (iii) system of alliances for agricultural and forestry technology. Financing will also be provided to cover costs of project administration and supervision by the MAG and participating public entities.

1. Support services for agricultural and forestry production (US\$6.1 million)

- 2.3 The purpose of this component is to develop a national capacity to provide better support services for agricultural and forestry production, so as to encourage greater productive efficiency, innovation and quality and to facilitate conversion into crops with higher value added. The services to be financed under this component are: (i) information system and (ii) phytosanitary protection and food safety.

a. Information system (US\$2.5 million)

- 2.4 This subcomponent will finance the establishment of 20 service centers to provide and exchange information on technology and on doing business. They will be located in selected areas with productive potential where the rural population has no public access to the Internet. These centers will provide producers with a link to production information and support services and to markets for their products, using information available over the Internet, as well as data generated by the Forestry and Agriculture Information Support System (SIASA), which will be developed with funds from this subcomponent. The following activities will be undertaken in pursuit of these objectives:
- 2.5 Development of SIASA within the MAG. Funding will be provided for technical assistance, specialized personnel and training, primarily aimed at staff of the General Directorate of Agricultural Economics (DGEA), in order to improve

techniques for capturing and producing information and to increase the DGEA's operational capacity. The MAG will design its own site on the Internet, which will be the principal means for disseminating technical information on the agricultural sector, as well as studies, analyses and recommendations useful to producers, importers, exporters and rural dwellers. Training in the SIASA will be provided for users and for MAG officials.

- 2.6 Information centers. Twenty information centers will be created in different areas of the country, selected in light of their productive potential and their need for public access to the service. The centers will give rural people easy access to the economic and support services they need to conduct business, facilitate commercial and social relationships among themselves and with sources of work. The centers will use the SIASA and will facilitate Internet connection for CENTA's extension workers and agencies. Each center will have the services of an expert to provide users with production and business guidance. Training will also be provided to users and to the rural population in general, so that they can make effective use of the Internet and of the SIASA. The centers will be operated by NGOs or private entities with the necessary technical capacity to provide the service.
- 2.7 Execution, monitoring and evaluation. Specialized technical assistance will be provided during project execution in order to supervise and ensure the quality of services. There will be a national meeting of promoters and users for publicizing the SIASA, and a networking plan will be developed and implemented for MAG agencies.

b. Phytosanitary protection and food safety (US\$3.6 million)

- 2.8 The government will be assisted in strengthening its capacity to provide services to ensure that domestic agricultural and agribusiness output meets the standards and requirements of international trade and public health. The strategy for achieving these objectives is to establish a national food sanitation, quality and safety system. This will require the following activities:
- 2.9 Restructuring the DGSVA. To ensure that the sanitary services provided by the MAG can offer the guarantees of equivalency needed to comply with the phytosanitary measures demanded by the international and domestic markets, the project will cover the following areas: (i) creation of departments for risk assessment and risk management, food safety, identification and traceability, quality control and strengthening of the data management information system; (ii) establishment of a sustainable system for providing services with updated fees that reflect real costs, and revision to the rules; and (iii) preparation of a compendium of DGSVA standards, and completion of the existing regulatory framework. To carry out this restructuring, DGSVA will reallocate current functions and human resources, with the support of short-term consulting services financed under the project.

- 2.10 Restructuring official control laboratories. Funding will be provided to modernize the organization and equipment of these laboratories so that they can implement a program of monitoring and surveillance over food residues and hygiene, to meet current and projected international standards in these areas. The equipment at the central and regional laboratories will be upgraded, the central laboratory's seed laboratory will be reconditioned, and the staff will be given technical training in good laboratory practices (GLP).
- 2.11 Training for DGSVA officials, and training and technical assistance for primary and industrial producers. Funding will be provided for training in best agricultural practices, best manufacturing practices, sanitary standards operating procedures, and hazard analysis and critical control points (HACCP). There will be seminars, fairs and phytosanitary control and eradication campaigns, so as to offer sanitary guarantees for export and to improve the quality and safety of food destined for the local market. New regulations and quality controls will be issued pursuant to the agreement with the World Trade Organization (WTO).
- 2.12 Creation of a national food health, quality and safety system (National Food Commission). (i) A food safety unit, with its own regulatory framework, will be established within the DGSVA, supplementary to the responsibilities of the MSPAS. The MAG will develop a plan of good farming practices and will coordinate with the MSPAS the surveillance of hygiene and sanitation conditions and the safety of processing plants for plant and animal products. (ii) A plan will be designed to control food residues and hygiene. (iii) Official programs will be established for accreditation and certification of the quality and safety of food products and byproducts. (iv) The allocation of responsibilities among ministries will be reviewed and rationalized. As a result of this institutional cooperation, agreements, definitions and procedures will be developed for proper functioning of a national food health, quality and safety system.
- 2.13 Technical assistance and training for organic food production. El Salvador could derive a significant commercial advantage by meeting international standards on organic production so as to increase the value-added of certain food products, differentiate them from the competition, and win new markets. To this end, the project calls for the following activities: (i) conduct prefeasibility and feasibility studies for producing organic products; (ii) train producers in the production of organic products; (iii) design and draft regulations and standards that will establish clearly and unequivocally the conditions that define an organic product; and (iv) identify a certification agency that can be recognized internationally (for example CONACYT) as an official organic product certification body.
- 2.14 Characterization and identification of productive units and practices. Each food producer or productive activity will be assigned a single identification number so that the components of plant and animal health and food safety can be identified and traced. A specialized firm will be hired to perform a field survey, process data,

and to introduce an identification system within the Ministry of Agriculture and so that support can be provided for the establishing a register of users of the irrigation system referred to in paragraph 2.23.

2. Rehabilitation, reconstruction and transfer of irrigation and drainage systems and crop diversification (US\$12.9 million)

- 2.15 The principal objective of this component is to support crop intensification and diversification and improvements to productivity and to the well-being of families involved in irrigated farming, through the efficient use of water resources. This component will fund investments in rehabilitation and reconstruction of infrastructure so that the responsibility for the administration, operation and future rehabilitation of the public systems can be turned over to the respective water users' associations. The component will pay for training and technical assistance in various areas of system organization and management, offered to all interested associations that meet the eligibility requirements. As well, technical assistance and training will be provided to MAG officials and to the federations of water users' associations.
- 2.16 Investments in rehabilitation and reconstruction will be made in those systems where the associations meet the eligibility criteria established in the project's Operating Regulations. These criteria require as a minimum that (i) water users' associations be incorporated, (ii) the association indicate its members' commitment to pay the rates for water use that are high enough to cover the costs of operation and maintenance and to set up a reserve for future rehabilitation to be determined as the equivalent of 50% of the cost of the investment, (iii) the association commit to carrying out the operation, performing maintenance, and carrying out future rehabilitation of the system, and (iv) the organization of the association be sufficiently developed with the capacity to collect the amounts charged and administer the resources collected.
- 2.17 Investment proposals must meet the criteria of economic, financial, technical and environmental feasibility set out in the project's Operating Regulations. Funds will be made available to interested associations that submit an application to the MAG and that meet the eligibility criteria. The technical assistance is intended to support the institutional development of these associations, so that they can meet the requirements of the project, and thereby access funding for infrastructure investments and take over their administration and operation. Through this component it is expected that the irrigated area will be expanded by 3,232 hectares in the public systems, 580 hectares in private systems, and 60 hectares in the dryland areas.
- 2.18 Technical assistance and training in irrigated farming. The project will pay for technical assistance, training, training equipment and the development of demonstration plots, as well as for the procurement and installation of water meters.

This assistance is intended to improve the know-how and skills of farmers and of the leaders of their irrigation associations, so that they can function as agribusinesses and can operate and maintain their systems sufficiently and on a self-sustaining basis, once they are transferred. This technical assistance will continue to be offered while the project is in progress in order to ensure that the associations are more institutionally mature after the transfer. These services will be offered on a nonreimbursable basis. Nevertheless, the associations will charge each beneficiary for 50% of the cost of installing meters. Funds raised in this way will be earmarked for maintenance and replacement of water meters.

- 2.19 Rehabilitation of public irrigation and drainage system infrastructure. The project will provide funding for rehabilitating infrastructure for maintenance and operation, and the reconstruction of infrastructure destroyed by the earthquakes, in the public irrigation systems, where these meet project eligibility criteria. Administration of these systems will be transferred by the MAG to the respective irrigation association together with the machinery and equipment which as of 30 June 2001 is part of the respective district's inventory of property. Some of the works that could be financed under the program include: re-lining of primary and secondary canals; upgrading siphons; replacing sluice gates; completing work on the distribution system; and preparing and leveling plots of land.
- 2.20 Crop diversification and marketing systems. The project will provide technical assistance and training to water users' associations in order to encourage diversification into higher-value crops, as part of a strategy for integrating the production of irrigated crops with their commercialization and marketing. Diversification will be consistent with the results from the crop prioritization work under the technology component. It is expected that the federations of water users' associations will play an important role in marketing crops, within the strategies of each system/association. The project will provide technical assistance and training to FEDARES, and to any other federation with the potential to provide services for post-harvest handling, marketing and sale of inputs.
- 2.21 Promoting private investment in agriculture under irrigation. The project will fund part of the investment, technical assistance and training in order to rehabilitate existing private systems and to build a number of small and micro irrigation systems in new areas of high productive potential, as a means of inducing small farmers to adopt better production techniques. Associations that fulfill the eligibility criteria set out in the Project Operating Regulations will be eligible for financing. These include at least that (i) the associations be incorporated, (ii) the association indicate their commitment to contribute their share of the counterpart funding in accordance with the methodology outlined in the project Operating Regulations, which may in no event be less than 10% of the total cost of the work, (iii) the association indicate its members' commitment to paying water rates that are high enough to cover operating and maintenance expenses and to set up a reserve for future rehabilitation to be calculated as the equivalent of 50% of the cost of the

project investment, (iv) the association commit to operating and maintaining the system and to carrying out future rehabilitation, (v) the association have a sufficiently developed organization with the capacity to collect the amounts charged and to administer such resources. The MAG will contribute at least 40% of the total cost of the works to a maximum of 90%. The MAG will enter into an agreement with the beneficiary association establishing the terms of participation for each of the parties and will grant it the concession for use of the water under an operating agreement.

- 2.22 The association will contract for the labor and works, with MAG technical support. Technical assistance and training will be provided to help users organize themselves in an association, as well as for operation and maintenance of the system, water distribution management, irrigated crop production, crop diversification and marketing for the output of those systems. Nearly US\$2 million will be earmarked for rehabilitation of existing systems. Small and micro irrigation systems in new areas will be simple, low-cost and easy to administer. To qualify for project resources, it must be demonstrated that such systems have production potential, low land holding, and provide low income. It is estimated that about US\$200,000 will be devoted to this activity, for a maximum project coverage of 60 hectares. The mechanism for making contributions to spur private investment and the eligibility criteria are described in the project Operating Regulations.
- 2.23 Institutional support. The project will include technical assistance and training to strengthen the institutional capacity of the MAG to regulate and set standards for the use of irrigation water, to coordinate its efforts with the water users' associations, to undertake strategic irrigation planning, and operation and maintenance of the systems. The MAG will receive technical assistance to prepare the terms of reference for the questionnaire on the establishment of the user register, which will be done together with the features of the production units referred to in paragraph 2.14 and for the review of environmental impact studies of the rehabilitation and construction of small systems, so that these investments can meet all the requirements of the Environment Act.

3. System of Alliances for Agriculture and Forestry Technology (US\$4.7 million)

- 2.24 This component is intended to strengthen the country's capacity to conduct research and to transfer technology. The project will finance establishment of a new National System of Alliances for Technological Innovation (SINALIT), supported by a mechanism for financing the generation and transfer of technology on a competitive basis, a methodology for prioritizing activities by headings, and a study of options for the sustainable management of the SINALIT over the long term. The component will finance the following three subcomponents: (i) establishment of and support for the SINALIT, (ii) competition fund for technology generation and

transfer, and (iii) a study on the long-term institutional and financial sustainability of the SINALIT.

a. Establishment of and support for the National System of Alliances for Technological Innovation (SINALIT)

- 2.25 Funding will be provided to create and implement a new system for technology generation and transfer, known as SINALIT, to be managed by the MAG. The SINALIT is based on the concept that the technology offer must be consistent with the demands of agricultural and forestry producers, as indicated by market signals. The SINALIT is intended to encourage the participation and coordination of the principal players involved in farming and forestry technology generation and transfer activities in the country. These players are grouped into the following four categories, known as "poles": (i) offer of services pole, consisting of a new research system that includes: applied research, and technology exchange and dissemination. This group of players includes the CENTA and other public or private institutions that can offer farming technology generation or transfer services; (ii) producers' pole: this includes all agricultural and agroindustrial producers and their production, supply and marketing organizations; (iii) food product markets pole: this includes businesses, associations and other bodies that are able to identify, formulate, transmit or determine demand for technological innovation through their demand for products; and (iv) institutional pole, which groups together the other entities involved directly in the food chain. Initially, these will be government institutions that regulate the process.
- 2.26 The MAG will retain responsibility for the creation and implementation of the country's agricultural technology development policy, and will hire a private firm to get the SINALIT up and running. Once the SINALIT is in place, this will strengthen the coherence of interactions and alliances among the players of each pole, giving the producers' and markets poles a relatively more important role. Producers will be able to give clear expression to their technology needs and their agricultural policy proposals, so that they can capture new markets. The institutional scheme of the SINALIT is intended to enhance the role of private initiative in the operation, administration and supervision of technical assistance, as well as in the generation of technology. As well, the system will allow the CENTA to focus its efforts on standard-setting, regulation, and accreditation, training and specialized services that will foster sound policies with respect to agricultural technology in the country. The CENTA will receive technical assistance and training under the various components of the project, to strengthen its capacity to play this role.
- 2.27 To help focus SINALIT's activities, a participatory methodology for prioritizing production objectives will be used. The method to be used is called Pro Act Conciliation Tool (PACT). The PACT will formalize the opinions and attitudes of the poles through the SINALIT, allowing the players to form a coordinated action

front with the common objectives of improving quality, increasing productivity and encouraging the adoption of technology. The method works on the basis of the results from prioritizing objectives through meetings of representatives of the different players (poles) involved, and allows for periodic updates. This prioritization will allow the government to allocate its human financial resources in such a way as to achieve greater efficiency in activities identified as priorities. CENTA personnel and other groups involved will be given training in applying this methodology. The results of the PACT application will establish the priorities for financing technology generation and transfer activities.

b. Competition fund for technology generation and transfer

- 2.28 So that SINALIT can contribute to the effective offer of technological services, a G&TT Fund will be established to finance research and the transfer of the technologies. This instrument, which will be an integral part of the SINALIT, will serve as a catalyst for State and private sector funding. These resources will be allocated in accordance with criteria and conditions established in the project's Operating Regulations. These funds may also be used for creating strategic alliances with regional and international research centers devoted to agricultural technology innovation suited to the country. The technology services will be delivered to beneficiaries on a cost recovery basis, so that the system will be financially self-sustaining. These resources will pay for technology generation and transfer activities. As a condition precedent to the disbursement of resources for the competition funds for technology generation and transfer, the priorities are to be determined under subcomponent (a), by production heading using the agreed methodology.
- 2.29 **Technology generation.** Project resources will be used to finance technology generation proposals, selected through competition on the basis of technical, economic, environmental and institutional criteria established in the project's Operating Regulations, and consistent with the priorities established with the PACT. Project proponents may be public or private institutions engaged in technology generation, or individual researchers with backing from an institution.
- 2.30 **Technology transfer.** The delivery of technology services will meet the demands of producers' groups, organized by predetermined agro-ecological zones and with access to markets. The plan calls for establishing up to 35 producers' organizations per year. Each of these organizations will provide training for 70 producers annually, through a training program, which will be designed by the executing agency during the first six months after commencement of its activities. Project resources will support development of a market for technology transfer service providers, initially financed jointly with the government and beneficiaries, and gradually shifting the burden to the beneficiaries so that the system will become financially self-supporting over time.

c. Study of the long-term institutional and financial sustainability of the SINALIT institutional scheme

- 2.31 The MAG is seeking to develop national capacity to administer and generate resources for agricultural and forestry technology on a sustainable basis after the project is completed, to promote broader private-sector participation in this area which has traditionally been served exclusively by the public sector. Consequently, it will be necessary to finance a study to analyze institutional options for securing the sustainable administration and operation of the SINALIT with domestic, private-sector participation. Based on the results of the study, the MAG is to present to the Bank a proposal for the long-term institutional and financial sustainability of the SINALIT. The MAG may present, for the Bank's consideration, a review of the originally proposed execution scheme of subcomponents (a) and (b). The first disbursement of subcomponent (a) of the SINALIT development component is conditional on submission, to the Bank's satisfaction, of the findings of this study.

C. Cost and financing

- 2.32 The total cost of the proposed program is US\$31.25 million, of which the Bank will finance US\$25 million from its Ordinary Capital. The local counterpart contribution will be US\$6.25 million. Table II-1 summarizes project costs by investment category and source of funding.

Table II-1. COST AND FINANCING STRUCTURE (US\$ 000)				
CATEGORY	IDB	Local	Total	%
I. Administration & Supervision	1,530	610	2,140	6.8
a. Operations administration	580	390	970	3.1
b. Supervision of physical works	800	200	1,000	3.2
c. External audit and evaluation	150	20	170	0.5
II. Direct Costs	18,399	5,310	23,709	75.9
2.1 Component 1: Agricultural and forestry production	4,249	1,833	6,082	19.5
a. Information system	1,429	1,023	2,452	7.9
b. Phytosanitary protection and food safety	2,820	810	3,630	11.6
2.2 Component 2: Rehabilitation, reconstruction and transfer of irrigation and drainage systems and crop diversification	10,400	2,536	12,936	41.4
2.3 Component 3: System of alliances for agricultural and forced the technology	3,750	941	4,691	15.0
III. Contingencies and Cost Escalation	1,278		1,278	4.0
Subtotal	21,207	5,920	27,127	86.7
IV. Financing Costs	3,793	330	4,123	13.3
5.1 Interest	3,543		3,543	11.4
5.2 Credit fee		330	330	1.1
5.3 Inspection and supervision	250		250	0.8
TOTAL	25,000	6,250	31,250	100
Percentage	80%	20%	100%	

1. Administration and supervision (US\$2.1 million)

- 2.33 The following items will be financed under this category: (i) project administration, amounting to US\$970,000, intended to cover personnel and operating costs that the MAG will incur in executing the project over a period of four years; (ii) works supervision, in the amount of US\$1 million to cover the costs of contracting a firm to supervise the physical works financed under component 2 of the project; and (iii) external audit and evaluation, in the amount of US\$170,000, intended to cover the costs of an independent firm of public accountants that will perform an annual audit of the financial statements for the project, during the four years of execution, and the costs of a midterm and a final evaluation

2. Direct costs (US\$23.7 million)

- 2.34 Under this category, funding will be provided for the purchase of equipment, contracting of civil works, and contracting of technical assistance and other services under each of the three investment components of the project.

III. PROGRAM EXECUTION

A. Borrower and executing agency

- 3.1 The borrower will be the Republic of El Salvador, and the executing agency will be the MAG, through its Project Coordination Office (PCO). The Director of the PCO will serve as project director.

B. Execution scheme

- 3.2 The PCO will be responsible for overall management and coordination of project operations. It will monitor the execution of each component, in accordance with the project's Operating Regulations, submit reports and financial statements to the Bank, request and justify disbursements, implement and maintain an internal financial control and administrative accounting system for each component, keep records of project expenditures, and keep updated the baseline data for project monitoring and evaluation. The PCO will have administrative support, financed by the project, from a small group of high-level, experienced professionals to fulfill these tasks.
- 3.3 The PCO will be responsible for coordinating the three Technical Execution Units (TEUs), which the MAG will set up for executing each of the project components. The TEUs will be established from existing MAG staff and specialists hired for the project, and will operate in the following sections: (i) the Agricultural Economy Division (DGEA) for the information system; (ii) General Directorate of Plant and Animal Health (DGSVA) for strengthening sanitation and food safety systems; and (iii) General Directorate of Renewable Natural Resources (DGRNR) for the irrigation component. The specialized entity to be contracted to execute the technology generation and transfer system will be supervised and monitored by the MAG's PCO and will receive technical support from the CENTA, in areas under its legal responsibility. The CENTA will sign an agreement with the Ministry specifying the manner in which the monitoring is to be conducted, the reports to be presented, and the commitment to carry out its work in accordance with the terms of the loan contract with the Bank. The PCO will have a Central Coordination Committee, consisting of a representative of each TEU. Since this execution scheme relies primarily on MAG headquarters staff, with the support of a small number of specialized consultants, the institution will gain the experience and installed capacity to continue executing projects of this kind after the Bank project is completed.
- 3.4 **Operating regulations.** The project's Operating Regulations contain the administrative, operating and financial procedures for the project, and the eligibility criteria for use of funding under each component. The Operating Regulations will also include models of the following documents: (i) the contract to be used with

NGOs or private sector entities for running the information centers; (ii) the agreement whereby the MAG will transfer administration of public irrigation systems to water users' associations; (iii) the agreement, contract or other instrument whereby subsidies will be provided for rehabilitating private systems; (iv) the agreement, contract or other instrument whereby funding will be provided under the Technology Generation and Transfer Fund. As well, the project's Operating Regulations describe the organizational structure and the technical and support staffing of the PCO and the TEUs, including their professional profile, and the specific functions and responsibilities of the TEUs, the CENTA and the other dependencies of the MAG, for purposes of project execution. They also contain the methodology to be used for calculating irrigation rates, the methodology for establishing the MAG contribution, and the counterpart share to be contributed by the associations of private irrigation systems, the project's physical and technical goals, the environmental management plan and the rules and standards governing its execution. During project preparation, an initial draft was prepared with the basic outline of the project's Operating Regulations. **Presentation of the final version of the project's Operating Regulations, to the Bank's satisfaction, is a condition precedent to the first disbursement.** Similarly, selection of the PCO Director, by public competition, on the basis of the requirements and professional profile previously agreed with the Bank, and formation of the Technical Execution Units for each component will be a condition precedent to the first disbursement.

1. Support services for agricultural and forestry production

- 3.5 **The information system.** An information systems unit will be created within the DGEA and MAG, which will serve as a TEU for executing the subcomponent. The unit will have a team of four experts: a computer unit coordinator, a high-level systems consultant, an agribusiness specialist, and a market intelligence analyst. The team will also include two MAG technicians: a specialist in systems and software, and a technical assistant. The group will be responsible for getting the SIASA up and running, in support of the information centers and to provide connectivity for CENTA agencies and CENDEPESCA offices.
- 3.6 The responsibilities of the computer unit include: (i) design of the information system for agricultural sector support, SIASA; (ii) putting SIASA into operation, and providing advisory and training services to the MAG directorates, so that they can perform direct and continuous maintenance and updating of the MAG site, operate the interactive online consultation system, and establish contracts with institutions within and outside the MAG, for feeding the web site; (iii) supervision of external technical assistance, ensuring quality control and adjusting programming within the system; (iv) undertaking connectivity and networking for the MAG, the CENTA agencies and CENDEPESCA, and providing technical support to the NGOs responsible for establishing the information centers sponsored by the project; (v) supervising the design of computer training courses and

organizing the training program; (vi) technical support in various computer-related aspects for the Ministry.

3.7 The MAG will be able to count on NGOs or private firms to manage the information centers. In those cases where the MAG has suitable physical installations and equipment, it will contract only for administrative services for the center. In other cases, the MAG may expand the contracting terms of reference to include not only administration responsibility but also the obligation to provide installations and equipment, consistent with the minimum specifications for proper functioning of the center. The users will be charged a rate based on the time the equipment is used and access to the network, in accordance with a methodology established in the project Operating Regulations. The other 10 information centers will be set up by MAG in CENDEPESCA's and CENTA's present offices which meet the minimum requirements for providing service and will be administered by these institutions. The MAG will enter into an agreement with CENTA setting out the terms of reference for the institution's share in this activity.

3.8 **Phytosanitary protection and food safety.** The General Directorate of Plant and Animal Health (DGSVA) will be responsible for executing this subcomponent. DGSVA will have an expert coordinator specialized in phytosanitary protection and food safety, contracted with project funds. This coordinator will have the support of a technical team consisting of specialist in the area animal health, plant health, food safety, risk analysis, food quality standards, computerization and planning, contracted under the project for terms that will vary in accordance with the evolving capacity of the services to be self-sustaining. The other members of this team will be selected from among the current staff of the DGSVA, which will ensure continuity of this work.

3.9 The Director of DGSVA, the expert team and the division heads of DGSVA will constitute the TEU for phytosanitary protection and food safety under the project. The TEU will meet regularly to review progress in executing the subcomponent, and to resolve any problems that may arise during this stage. The characterization and identification of the productive units and the establishment of the irrigation user register will be carried out by a specialized firm hired in accordance with the Bank's procurement procedures. This activity will be supervised by the MAG's DGEA.

2. Rehabilitation, reconstruction and transfer of irrigation drainage systems and crop diversification

3.10 The Irrigation Drainage Division within the DGRNR will be responsible for executing this component. The component coordinator will be the head of the division, who will have the support of a high-level expert, financed by the project. In addition, the division will designate people responsible for the various areas of work, consistent with the component's structure. The component coordinator, the high-level expert and the area officers will make up the TEU for the component.

This TEU will meet regularly to review progress with the component and to resolve any problems that may arise during this stage.

- 3.11 The funds for technical assistance, investment in system rehabilitation, land leveling and O&M equipment will be available to water users' associations, both public and private, that meet the eligibility criteria for participating in the project's different investment categories. An association's eligibility for use of these funds will be determined, first, by its degree of institutional and organizational development. Eligibility will be determined by analyzing management capacity indicators, including the installation and operation of water meters, availability of funds and capacity to pay O&M costs, and a reserve to pay for future rehabilitation works. To ensure that producers are serious in their intention to pay for the water they receive, the project's Operating Regulations make it a condition for rehabilitation of any system that there be a mechanism for micro measurement of flows supplied, that users have paid the corresponding rates for at least six months before rehabilitation begins, and that total collections have exceeded total O&M costs for the system. The project's Operating Regulations include detailed criteria to be used in the institutional analysis of associations. If it is to continue accessing funds, the association must maintain its institutional performance at levels required for the program, throughout execution of the project.
- 3.12 Once an association has been declared institutionally eligible, the economic, financial, technical, social and environmental feasibility of the proposal will be assessed. Projects will contain design parameters and indicators for monitoring management and results, on the basis of minimum standards established in the project's Operating Regulations. These will explain in detail the methodology to be used in the economic and financial analysis of investments.
- 3.13 Before any rehabilitation work or project on public systems is done, MAG and the association will be required to sign a management transfer agreement containing the commitments made by each party and that MAG grant a concession on water use under an operating agreement. The works and projects will be carried out by MAG, which must also monitor fulfillment of the associations' commitments, and being entitled if necessary to take such steps as are necessary to enforce compliance.
- 3.14 The technical assistance and training will be provided by private entities and qualified NGOs. Some specialized or highly targeted activities will be offered directly by MAG personnel. The delivery of the services is governed by the project's Operating Regulations. Technical assistance and training services will be available to all legally constituted water users' associations that meet the eligibility criteria for this assistance. The project will work closely with those systems that cannot initially qualify for access to the investment fund, and will help them pursue action plans for institutional improvements so that they can subsequently become eligible for infrastructure investment resources.

3. System of farming and forestry technology alliances

- 3.15 The MAG will have the services of a specialized consulting firm, hired in accordance with the procurement procedures established in the loan contract with the Bank, to develop and operate the SINALIT system, and for evaluating research proposals submitted for the Technology Generation and Transfer Fund, and for submitting its recommendations to the MAG (subcomponents (a) and (b)). The MAG will be provided under the project with the services of a consulting firm to conduct a study analyzing viable options and making recommendations for the institutional and financial sustainability of the SINALIT over the medium and long term. The operational and technical aspects of this component will be governed by the project's Operating Regulations.

C. Environmental and social aspects

- 3.16 A full Environmental and Social Management Plan (PMAS) has been designed and will be part of the project's Operating Regulations. This PMAS will include prevention and mitigation measures consistent with the country's environmental legislation, with particular reference to irrigation and drainage system rehabilitation projects, where the existing domestic legislator framework allows for proper management of natural resources. Measures have been included to avoid inappropriate soil management practices, to encourage the correct use of agricultural chemicals, prevention and mitigation measures for infrastructure reconstruction and rehabilitation activities, sound water management, good productive practices with irrigated crops, and measures to reduce the imbalance in participation by women and minority groups. In addition, an environmental monitoring program has been designed, to be supervised by a full-time environmental officer attached to the PCO. The costs of the PMAS are included in the project budget.

D. Execution and disbursement periods.

- 3.17 The project is expected to be executed and disbursed over a period of four years, from the time the loan contract enters into force. Following is the annual schedule for disbursements under the project, classified by source of financing:

Table III-1. Annual disbursements by source of financing (in US\$ millions)						
Source	Year 1	Year 2	Year 3	Year 4	Total	%
IDB (OC)	4,996	8,244	7,840	3,920	25,000	80
Government of El Salvador	1,395	2,223	1,618	1,014	6,250	20
Total	6,391	10,467	9,458	4,934	31,250	100
% year	20.4	33.5	30.3	15.8	100.0	

E. Program accounts and external audit

- 3.18 Funding transactions relating to the various components and subcomponents of the project will be recorded in accounts kept by the MAG as executing entity. An accounting system consistent with Bank policies will be used for this purpose, and annual financial statements will be produced during the project disbursement period. These financial statements will be subject to annual audit within 120 days after the close of the year, by a firm of independent public accountants selected with the Bank's concurrence (no objection). Funds from the Bank loan will be used to pay the cost of these audits.

F. Supervision and evaluation

- 3.19 To monitor the project, the borrower undertakes to submit, to the Bank's satisfaction, the following reports: (i) the operating plan for year one of the project, (ii) the annual operating plans including all of the components within 30 days after the beginning of each calendar year, and (iii) semiannual progress reports. MAG shall also submit to the Bank's satisfaction the following evaluation reports: (i) a midterm evaluation report to be conducted 24 months after the effective date of the project or when at least 50% of the proceeds of the financing have been disbursed, which comes first, and (ii) a final evaluation report to be conducted when 90% of the financing has been disbursed to be based on the monitoring and performance targets and indicators agreed on with the Bank.
- 3.20 Project supervision will be the task of the Bank's Country Office in El Salvador. Staff of the PCO, the TEUs and Bank project specialists will hold annual meetings to monitor and evaluate execution of the program. The first of these will be held within the first quarter of the second year of execution. The joint meeting will: (i) review compliance against objectives and components, using as its basis the monitoring indicators included in the project's logical framework; (ii) review goals achieved under the annual work plan (AWP) for the previous year; and (iii) approve the AWP for the following year. If this joint annual review finds it necessary to adjust the contents of the project, the MAG will make these changes, subject to the Bank's no objection.
- 3.21 The PCO is responsible for keeping updated the baseline and performance data updated during implementation of the project. The logical framework for the project includes indicators for measuring performance and for monitoring the program in its various components during each of the four years of execution, as jointly agreed between the Bank and the MAG.

G. Revolving fund

- 3.22 A revolving fund to meet disbursement needs will be established with 5% of the loan.

H. Retroactive recognition of expenses and funding advances

- 3.23 The Bank may recognize, as a charge to the counterpart contribution, expenditures made by the MAG since 1 January 2001, up to the equivalent of US\$1 million, for installation of information centers and reconstruction of irrigation infrastructure, provided that the contracting procedures followed are substantially similar to those of the Bank.
- 3.24 Once the conditions precedent to the first disbursement have been met, as stipulated in article 4.01 of the General Conditions, disbursement may proceed for up to the equivalent of US\$200,000, upon entry into force of the loan contract, so that the MAG can take the steps necessary to comply with the special contractual conditions.

I. Procurement of goods and services

- 3.25 Procurement of goods and services will be done in accordance with Bank policies. The MAG will follow international competitive bidding for the procurement of goods for amounts in the equivalent of US\$250,000 or more, and for contracting works where the amount is US\$1.5 million or more. In the case of consulting services, contracts for amounts exceeding the equivalent of US\$200,000 will be submitted to international competition. Procurement transactions for less than these amounts will be conducted by the MAG in accordance with domestic legislation, as long as this is consistent with Bank principles.

IV. FEASIBILITY AND RISKS

A. Institutional feasibility

- 4.1 The MAG will be responsible for executing the project, with a small and highly trained coordination team that will supervise service providers, who will be primarily from the private sector or NGOs. Efforts to revitalize research and technology transfer and to strengthen phytosanitary protection could be undermined if the units responsible do not have the required institutional quality. The project will attempt to address this problem by sponsoring training, technical assistance and public information campaigns.
- 4.2 Since the execution scheme relies primarily on MAG headquarters staff, with the support of a small number of specialized consultants, the institution will gain the experience and installed capacity to continue executing projects of this kind after the Bank project is completed.

B. Economic and financial feasibility

1. Support services for agricultural and forestry production

- 4.3 The benefits of this component are difficult to quantify. For this reason, the evaluation of its socioeconomic return is purely indicative. It is expected that this component will be of particular benefit to staple grain and livestock producers, but it will also help producers of fruits and vegetables, and forestry operations. Taking into account the easier access that producers will have to the information centers, and the improved quality of the services they offer in terms of phytosanitary protection and food safety, net producer incomes should rise. For staple grain producers and forestry operations this increase is estimated at 0.5%, over a term of seven years, beginning in the third year of the component. For producers of fruits and vegetables, an increase of 1% in net incomes is projected over the same term, and for livestock producers, an increase of 0.5%, through the sale of milk, beginning in the third year of the component. These increments are to be achieved through a combination of increased productivity in traditional crops, changes to production patterns, with a stress on more profitable crops, and emphasis on sustainable production practices. Fulfillment of these modest projections would result in an annual economic rate of return of 31% on investments under this component.

2. Rehabilitation, construction and transfer of irrigation and drainage systems and crop diversification

- 4.4 The viability of each of the public irrigation districts, and one typical private system (Las Pilas, Chalatenango), was analyzed, and investment costs for making each of

these systems operationally efficient were estimated, together with annual operation and maintenance costs. Taking into account the volumes of water to be provided to users, total O&M costs and 50% of investment costs (the percentage stipulated in Salvadorian legislation as the minimum government contribution to public irrigation systems), the average long-term incremental costs (ALTIC) per cubic meter of water delivered over a horizon of ten years were calculated, and these costs were used to establish the average fee to be charged to users. All systems will be financially viable from the first year of rehabilitation, with the exception of Las Pilas, where the use of water for irrigation will increase only slowly. The ALTIC figures turned out to be very high for Las Pilas, Chalatenango, primarily because of the imbalance between rehabilitation costs and the flow of water supplied to the irrigation system. As well, the ALTIC of the Zapotitlán High Zone and Atiocoyo Norte reflect the costs of pumping underground water for irrigation.

Table IV-1. Financial viability of the systems

Systems Years	Financial surplus per system (US\$000)				
	1	2	3	4 +	ALTIC
Public					
Atiocoyo Sur	123.4	121.1	123.8	142.9	2.25
Atiocoyo Norte	54.4	52.1	33.0	82.4	3.88
Zapotitlán Zona 5	9.9	19.1	31.8	50.0	2.88
Zapotitlán Zona Alta	20.4	23.7	67.0	109.6	3.14
Lempa Acahuapa	75.3	88.2	117.0	165.7	1.80
Private					
Las Pilas, Chalatenango	-13.8	9.4	34.3	58.8	9.13

Source: Project economic and financial evaluation

- 4.5 Next, the financial viability of a typical operation was verified for each irrigation system. It was found that the increase in net incomes for producers, even after paying for the water consumed and for the technical assistance services provided, is significant, which means that producers will have an interest in supporting the project and in meeting their payment obligations. In the Atiocoyo North system, net incomes will drop during the first years, because the increase in gross revenues during those years is not enough to offset the expected increase of US\$1,845 in payments for irrigation water. The sharp increase in the water rate reflects the fact that, at present, users do not pay for the electricity needed to pump underground water. In contrast, in the Upper Zapotitlán Zone, intensive use of the land for

high-yield fruit and vegetables produces the greatest increase in net incomes, despite significant costs for pumping water. The other systems rely on surface waters.

**Table IV-2. Increase in net incomes per typical operation
(dollars per family, annually)**

Systems	Farm size (ha)	Net increase (dollars of 2000)			
		Year 1	Year 2	Year 3	Year 4-10
Public					
Atiococho Sur	3.6	226	856	2,201	4,628
Atiococho Norte	3.0	-1,399	-1,037	-189	1,929
Zapotitlán Zona 5	1.0	569	741	1,181	1,704
Zapotitlán Zona Alta	3.0	3,556	4,284	6,015	7,769
Lempa Acahuapa	1.5	225	591	1,259	2,424
Private					
Las Pilas, Chalatenango	1.0	472	1,740	3,329	4,816

Source Project economic and financial evaluation

- 4.6 For the socioeconomic evaluation of the irrigation systems, financial prices were corrected with the introduction of shadow pricing and correction factors for tradable and non-tradable inputs and products, and for skilled and unskilled labor as well, the totality of system rehabilitation costs was considered, and the electricity bill was included in two scenarios, with and without the project. The sensitivity of results to a 10% increase in gross outlays was examined, including payment for irrigation and technical assistance costs, and the same was done for a 10% decline in gross revenues. The high rates of economic return obtained are common in the case of irrigation system rehabilitation, because the principal investment costs are sunk costs that were incurred when the dams and canals were first constructed. Although this sensitivity analysis showed that net incomes remain stable in the "without project" situation, the economic return on the systems was substantially robust against changes in incomes and expenses in the "with project" scenario.

Table IV-3. Economic return on systems and sensitivity analysis

Systems	IRR base case %	IRR with 10% reduction in gross incomes, "with project"	IRR with 10% increase in gross costs, "with project"
Public			
Atiocoyo Sur	39.8	22.5	30.0
Atiocoyo Norte	43.5	26.3	33.7
Zapotitlán Zona 5	40.0	26.5	32.7
Zapotitlán Zona Alta	115.3	45.6	76.9
Lempa Acahuapa	83.2	57.1	70.0
Private			
Las Pilas	42.1	29.7	37.4

Source: Project economic and financial evaluation

- 4.7 To ensure that producers are serious in their intention to pay for the water they receive, the project's Operating Regulations make it a condition for rehabilitation of any system that there be a mechanism for micro measurement of flows supplied, and that users have paid the corresponding rates for at least six months before rehabilitation begins, as well as that total collections have exceeded total O&M for the system. By law, the payment of rates is governed by the statutes and internal regulations of the irrigation associations. Many of them provide for penalties, fines and suspension of service, and for most district associations' payment arrears are very low. Technical assistance and training under the project will provide better tools for setting and collecting water rates and for resolving conflicts within the associations.

3. Support services for agricultural and forestry production; and the system of alliances for agricultural and forestry technology

- 4.8 As with the support services component, the benefits of this component are difficult to quantify, and for this reason the assessment of their socioeconomic return is purely indicative. The bulk of benefits from this component will be received by small-scale farmers. It is expected that up to 35 producers' organizations will be activated each year, to a maximum of 312 over a term of 10 years. Each of these organizations will provide training each year for 70 producers, through a two-year training program. In this way, more than 150,000 producers will be trained over a period of 10 years. It is expected that training received through the system of alliances will raise incomes for participating producers by some 20% over their current level of US\$500 a year.

- 4.9 This component will also benefit nearly 6,000 modern producers over a period of 10 years, raising their farm incomes by up to 20% in comparison with their current level of US\$980 per year. Finally, the component will benefit at least 180 small and medium-size enterprises over a period of 10 years, raising the annual revenues of each business by an average of US\$2,000. On the basis of these projections, the internal rate of return for this component will reach 13.9% annually.

C. Social and environmental impact

- 4.10 Identification and assessment of possible negative impacts, direct or indirect, and of the mitigation measures included in the design of the components shows that negative impacts are limited and controllable through the mitigation measures suggested in this section. The Environmental and Social Impact report, approved by CESI on March 23, 2001, provides a detailed discussion of the environmental and social feasibility of the proposed components.

- 4.11 **Environmental impact.** The various components of this project will result in improvements in the transfer of technologies and information and in the use of water and soil resources. The environmental benefits of these improvements will be felt primarily in changes in current farming and forestry practices, through a switch to practices and technologies that will encourage the sustainable and rational use of natural resources. The project's impact is consistent with the objectives of the Mesoamerican Biological Corridor (CBM). Through its component for rehabilitation of irrigation drainage systems and agricultural diversification, the project will contribute to the objectives of the CBM, since it will promote the diversification of production with an emphasis on the sustainable use of soils. The project will encourage investment in the rehabilitation of irrigation and drainage systems, using modern technologies and engineering designs that will enhance the efficiency of the system and reduce the wasteful use of water. Moreover, the project will help to increase productivity, and contribute thereby to reducing the use of marginal or hilly lands, and improving the quality of life for the region's inhabitants.

- 4.12 **The information centers.** The positive environmental impact of establishing the information centers will come through more effective dissemination of information promoting the sustainable and rational use of natural resources and environmentally sustainable agriculture and forestry practices.

- 4.13 **Phytosanitary protection and food safety.** Food quality will be improved primarily in order to protect the health of domestic consumers, and so that exported products will meet international standards. By improving the handling and use, control, administration and regulation of agricultural chemicals, soil and water pollution will be reduced. By improving inspection and quarantine systems, it will be possible to reduce the number and incidence of attacks by plant and animal species that are not endemic to the country or the region. Reducing the number and

intensity of exotic species invasions will have an economic benefit, because it will reduce the need, and hence the cost, of control and eradication programs. In addition, improved pest monitoring will reduce the incidence of plant and animal diseases, the use of pesticides, and the presence of toxins in food and in the environment.

- 4.14 **Rehabilitation, reconstruction and transfer of irrigation systems and crop diversification.** This component will include training in irrigated farming, output diversification and marketing. This training will be conducted with environmentally sensitive practices and will incorporate instruction in land use and conservation, erosion control (through land leveling practices), use of pesticides and fertilizers, and the rational use and management of water resources. This training will help to enhance the productivity and sustainability of production, and thereby reduce the need to expand the agricultural frontier into marginal or hilly lands. Investments in rehabilitation and in technological improvement of irrigation and drainage infrastructure and the incorporation of water metering and fees will make systems more efficient, thereby reducing the waste of water. This component also calls for pilot projects to incorporate dryland farms into irrigated production, with small-scale waterworks aimed at low-income producers. It is hoped to incorporate plots into an annual production cycle and thereby improve productivity and reduce the pressure to expand farming to new lands, thereby protecting marginal soils and preserving biodiversity.
- 4.15 **Agricultural and forestry technology and strategic alliances.** The technology produced will be environmentally sustainable. As a requirement for accessing technology generation and transfer resources, proposals must be accompanied by a plan to ensure the environmental feasibility of the technologies requested, in accordance with the provisions of the project's Operating Regulations: (i) a procedure for analyzing the environmental impact of the proposed technologies, and (ii), if there are negative impacts, measures to mitigate them must be incorporated into the technologies before they are disseminated.
- 4.16 No major negative environmental impacts are expected. The impact of infrastructure construction will be minimal, since no large-scale investments in new infrastructure are planned. The major investment will be in the rehabilitation of existing irrigation drainage infrastructure.
- 4.17 **Social impact.** The project will have positive social impacts that will make themselves felt in increased economic and social welfare and in the health of producers, water users' associations and consumers. Special attention will be paid to training women in crop management, irrigation and marketing. This last area has been a traditional sphere of activity for women in El Salvador's agrarian society. It is hoped in this way to improve the welfare of rural women, by giving them opportunities to increase their incomes and reduce gender inequalities.

- 4.18 **The information system.** An improved system of information and agricultural support will enhance the capacity of extension workers and the competitiveness of producers in irrigated areas and dryland farming zones that are incorporated into the annual irrigated crops cycle. By strengthening and increasing producers' access to information, producers and their associations should be in a better position to penetrate new markets; the risks inherent in agricultural production will be reduced; and inputs and credit will become more accessible. Women, in particular, will benefit from access to information and training, by improving their know-how and skills.
- 4.19 **Phytosanitary protection and food safety.** The health of Salvadorian consumers will be improved by reducing toxins in foods. Moreover, Salvadorian producers should see their incomes rise, and they will become more competitive on international markets, as product quality increases and international standards are achieved.
- 4.20 **Rehabilitation, reconstruction and transfer variation systems and crop diversification.** This component will improve the physical conditions of production, and enhance the know-how and skills of producers and water users' association leaders, which will result in new opportunities for increasing rural incomes. By promoting associations, the social capital of rural communities will be enhanced.
- 4.21 **Agricultural technology and strategic alliances.** By prioritizing research and creating the G&TT Fund, the project will support human capital formation through the transfer of technology to extension workers and producers; it will increase revenues by raising productivity through new technologies; and it will enhance social equity by providing training for women.

D. Benefits

- 4.22 **The information system.** Producing basic information on climate, output, prices, farming practices, productive processes and agricultural investment opportunities is recognized as a proper function of government, because of the accompanying externalities. Surveying price information from related businesses and making it available to the public will foster competition and make markets operate more transparently. The generalized dissemination of information could also have a potentially significant impact on income distribution. The potential value of information and of access to this information are undeniable, although they are difficult to quantify. A further contribution of the project will be the establishment of a system of control, monitoring and coordination, which will provide regular and systematic feedback from users on the value of the information produced and distributed, as well as the establishment of cooperative networks for producing information. Once it is in place, the system will improve the quality of information,

avoid duplication of effort by different agencies, and allow the information centers to discontinue activities that are of limited usefulness to their clients.

- 4.23 **Phytosanitary protection and food safety.** Strengthening the inspection and quarantine systems will help reduce the number and intensity of exotic species invasions, and this will represent an economic benefit by reducing the need for and cost of control and eradication programs. In addition, by improving pest monitoring, the incidence of plant and animal diseases will be reduced, as will the use of pesticides and the presence of toxins in foods and in the environment.
- 4.24 **Rehabilitation, reconstruction and transfer of irrigation systems and crop diversification.** The benefits of this component, in terms of increasing the value of farm output, will result from the extension of the public irrigated area by 3,232 hectares, as well as 580 hectares in the private systems and 60 hectares in the dryland areas, and improvement in the quality of land through leveling, greater intensity of land use, with two or three crops a year, diversification into highly profitable crops, reduction in the exploitation of marginal, higher-altitude lands and the development of sustainable agriculture. These impacts, in turn, will serve as multipliers for investment and employment, and will thereby reduced poverty. This component will improve the management of irrigation drainage systems, and encourage private investment in them, since water is the key input for promoting diversification and commercialization of higher value added crops, and for achieving greater yields and incomes in certain traditional crops. Some of the irrigation infrastructure works to be rehabilitated were damaged during the earthquakes. Reconstructing irrigation drainage infrastructure quickly will help to re-establish activity by those producers who are most affected by the 2001 earthquakes.
- 4.25 **National system of alliances for technological innovation.** The main beneficiaries of technology generation and transfer will be small and medium-sized producers with productive potential. Thanks to the technology development projects, beneficiaries will have access to know-how and materials with which they can increase their productivity and gain access to higher-value markets. The competitive manner in which the technology will be generated will introduce incentives for establishing a national technical capacity.

E. Risks

- 4.26 **Information system.** The principal risk associated with creation of the SIASA lies in the capacity of the MAG to keep these services on a sustainable footing, once the project is completed. To mitigate this risk, fees will be established for the services, and the private sector will be involved in providing them wherever possible. At the same time, the project will provide a unique opportunity for establishing a small computerization unit within the MAG, with high technical and operational capacity,

which will lay the foundation for subsequent, more intensive development of computer services for the Ministry, once the project is completed

- 4.27 **Strengthening the system of phytosanitary protection and food safety.** Success in this component will depend, in large measure, on the capacity of responsible State bodies such as the MAG-DGSVA, the MSPAS and MINEC-DPC to implement and enforce the rules, laws and standards necessary for proper functioning of these areas. The project calls for training and technical assistance for these units, to strengthen their understanding of the importance of compliance with these rules, and their impact on public health and on domestic and international markets.
- 4.28 **Rehabilitation, reconstruction and transfer of irrigation systems and crop diversification.** The complexity of the contract awards process and the work required to rehabilitate the irrigation systems constitutes a major risk for successful implementation of this component. In order to minimize this risk, the unit responsible for executing the component will include officials of the MAG, who were previously involved in similar processes. There is an additional risk that the proposed investment projects will be delayed because of the requirement for an environmental license from the national government. This Environmental Permit is a basic requirement for the startup and operation of works in projects in El Salvador. To mitigate this risk, public consultations will be held when Environmental Impact Studies are conducted, to determine any impact on the quality of life or any threats to human and environmental health and welfare.
- 4.29 There is a risk that the water users' associations that are to benefit from the program will not be able to manage the systems properly, and this could lead to deterioration of the infrastructure rehabilitated under the project. To mitigate this risk, the water users' associations will receive technical assistance and training in irrigated farming and in operation and maintenance of the systems. As well, the agreement to be signed by the MAG with each association, for conducting the rehabilitation work and transferring administration to the association, will include a provision committing each association to charge fees and contributions that will cover the cost of maintaining the systems, and will include a clause releasing the Government of El Salvador from any obligation for further investment in rehabilitation after the hand-over. Evidence in fact suggests that the water users' associations are taking a businesslike approach to managing the systems, and during the recent emergency caused by the earthquake the associations demonstrated their capacity and their determination to repair the systems and restore them to service as quickly as possible, without government assistance.
- 4.30 **National system of alliances for technology innovation.** The principal risk to the technology component is the possibility that beneficiaries will fail to respond, because of the uncertainty of the market for their services, reflecting the traditional approach whereby technology services were offered free of charge by the

government. The design of the system, which is based on market demand, will mitigate this risk, since beneficiaries will see in it a quantifiable value that will justify payment for service. In addition, to mitigate this risk and to motivate farmers to participate in the new scheme, the MAG will conduct promotional campaigns for the program, and producers will take part in periodic reviews of the SIASA and its functioning. There is evidence of a potential demand and supply of technology services sufficient to launch activities under the proposed scheme, and to produce a demonstration effect for other groups of producers.

AGRIBUSINESS REENGINEERING PROJECT (ES-0119)

Narrative Summary	Indicators	Means of Verification	Assumptions
<p>ers more competitive, irrigation ducted and rehabilitated. Diversification in the program's areas</p>		<p>Official figures from the Central Bank of El Salvador and the Ministry of Agriculture (MAG).</p> <p>Official government figures, obtained through multipurpose household surveys.</p>	<p>SUSTAINABILITY</p> <p>No natural disasters that would prevent agribusinesses and slow down the reconstruction</p> <p>No macroeconomic shocks that would affect the national economy.</p>
<p>incomes from farming and s</p>	<p>Net incomes rise by 0.5% for staple grain producers, 1% for fruit and vegetable producers, and 0.5% for livestock producers, over seven years, beginning in the third year of execution.</p> <p>Net farm incomes rise as projected in rehabilitated irrigation systems (increases between US\$1,700 and US\$7,700 annually for a typical farm in each system).</p> <p>Over a period of 10 years:</p> <ul style="list-style-type: none"> -net farm incomes rise by 20% for 150,000 small producers. -net incomes rise by 20% for 6,000 modern farmers. -average annual incomes rise by US\$2,000 for 180 SMEs 	<p>Official figures published by the Central Bank and the MAG.</p> <p>Official government figures, obtained through multipurpose household surveys.</p> <p>Annual reports of the MAG. Frederick reports.</p>	<p>PURPOSE TO GOAL</p> <p>No world recession that would reduce farm products and cause international</p> <p>Continuity of macroeconomic stabilization programs and trade policies with no bias.</p>

Narrative Summary	Indicators	Means of Verification	Assumptions
			COMPONENTS TO PURPOSE
<p>T 1</p> <p>system of farm support</p>	<p>A system for capturing and transferring information that provides reliable, timely and sustainable information services.</p> <p>The national system of food health and safety is in place and functioning, providing internationally recognized certification in a reliable, timely and sustainable manner.</p>	<p>User surveys. Online user surveys. Advisory Council reports. Project reports.</p> <p>National Food Health and Safety Commission (CNA) operating in accordance with the manual, which identifies the functions of agencies responsible for food health and safety.</p> <p>Compendium of sanitary standards (CNS) available in physical form (print and CD), with plans for Internet access. CAS structure document.</p> <p>National Monitoring and Surveillance Plan document.</p> <p>Published criteria for service fees and products (cattle).</p> <p>Service payment orders (DGSVA).</p> <p>Executive agreements published in the Official Gazette.</p>	<p>Information system operating resources enhanced.</p> <p>More farmers are committed to an agricultural approach.</p> <p>The CNA has the resources to function (budget contribution from national agencies responsible for food health and safety).</p> <p>DGSVA uses the CNS and sanitary agreements and enforce the standards established in Salvador.</p> <p>Adequate residue and hygiene control in Salvador.</p> <p>Proper use is made of the information by CNA units and departments for improving food health and safety.</p>

ative Summary	Indicators	Means of Verification	Assumptions
S NT 2			COMPONENTS TO PURPOSE
irrigation systems are the water users' with the Agricultural n Plan completed and	<p>Irrigation systems have been transferred to those users' associations that meet eligibility criteria at the end of project execution.</p> <p>Associations can meet 100% of system operating and maintenance costs at the end of project execution.</p> <p>Increase in the volume/value and diversity of irrigated farm output.</p> <p>Beneficiary associations are capable of self-management</p>	<p>Annual report of MAG. Reports of FEDARES.</p> <p>Annual report of MAG. Reports of FEDARES.</p> <p>Official statistics of the Central Bank and MAG. Statistics produced by water users' associations and FEDARES. Annual reports of MAG.</p> <p>Registry of members, election records, operating and maintenance plans, annual operating plans, and financial records.</p>	<p>Beneficiary water users' associations have ex capabilities, once the training phase is conclu</p> <p>Local communities and irrigation association counterpart contributions to project execution maintenance.</p> <p>Producers and associations implement recom FEDARES, MAG, and CENTA.</p>
private irrigation satisfy the eligibility rehabilitated or built	Constructed and rehabilitated irrigation systems are operating at full capacity.	<p>Report of MAG.</p> <p>Reports of FEDARES and users' associations.</p> <p>Physical inventory of installations.</p>	<p>Users and associations meet the requirements the transfer agreements</p> <p>There is a capacity to rehabilitate and reconst swiftly.</p>
on systems that were destroyed by the completely rehabilitated t 12 months of project	Reconstructed and rehabilitated irrigation systems are operating at full capacity.	<p>Report of MAG.</p> <p>Reports of FEDARES and users' associations.</p> <p>Physical inventory of installations.</p>	<p>There is a capacity to execute rehabilitation a reconstruction works swiftly.</p> <p>The government provides reconstruction fun 40% of the amount required by law).</p>

ative Summary	Indicators	Means of Verification	Assumptions
S			COMPONENTS TO PURPOSE
<p>NT 3</p> <p>ances for agricultural</p> <p>INALIT) is functioning</p>	<p>At least 312 small producers' organizations are functioning within 10 years.</p> <p>70 small producers trained by each organization each year.</p> <p>6,000 modern producers receive technical assistance over a period of 10 years.</p> <p>180 SMEs receive technical assistance over a period of 10 years.</p> <p>Beneficiary producers pay their contributions in accordance with the Operating Regulations.</p>	<p>Annual reports of COPIN</p>	

Executive Summary	Indicators	Means of Verification	Assumptions
COMPONENTS			SUBCOMPONENTS TO COMPONENTS
COMPONENT 1.1 Efficient and sustainable services are in wide use.	<p>At the end of project execution, at least 50% of potential beneficiaries use and appreciate the market intelligence information.</p> <p>At the end of project execution, at least 50% of potential beneficiaries use and appreciate the agricultural statistics and basic information generated.</p> <p>At least 80% of users seeking strategic guidance are satisfied with the information provided. Other users succeed in doing business through the exchanges established by SIASA.</p> <p>The system contains a broad range of well-organized information and is known and consulted not only within the country but also by potential importers abroad.</p> <p>The system is flexible and low-cost, and is gradually expanded and improved.</p>	<p>Survey of potential users.</p> <p>Survey of potential users.</p> <p>Survey of online system users</p> <p>Survey of online system users</p> <p>Reports of the Advisory Council</p>	<p>Level of funding for the information system is</p> <p>The country's natural resources allow development of competitive non-traditional agriculture.</p> <p>A significant number of farmers are committed to the agribusiness approach.</p>

ative Summary	Indicators	Means of Verification	Assumptions
COMPONENTS			SUBCOMPONENTS TO COMPONENTS
<p>COMPONENT 1.2</p> <p>Health services are integrated and consolidated through the Directorate of Animal and Plant Health (MAG-DSGVA), and the Directorate of Public Health.</p> <p>A National System of Food Health, Safety and Quality (CAN)—is created.</p>	<p>At least 50% of products for export and domestic consumption meet national and regional food health and safety standards by the end of the second year of execution.</p> <p>Establishment of the CAN is announced in the Official Gazette, at the end of the first year of the program.</p> <p>There is an analytical document on gaps and overlaps in the responsibilities of agencies involved in food health, quality and safety, within the first four months of program execution.</p> <p>Responsible: MAG</p>	<p>Agricultural output statistics from MAG and reports of the DSGVA.</p> <p>Phytosanitary quality study of Salvadoran products.</p> <p>The CAN is up and running.</p> <p>The operations manual exists, identifying all agencies involved in food health and safety.</p>	<p>Component investments are executed as planned.</p> <p>Producers, processors and exporters implement recommendations of the DSGVA.</p> <p>There is serious and consistent monitoring of compliance.</p>

Executive Summary	Indicators	Means of Verification	Assumptions
COMPONENTS			SUBCOMPONENTS AND COMPONENTS
<p>COMPONENT 2.1</p> <p>of irrigation and equipment that was destroyed by the earthquake, and rehabilitation requirements.</p> <p>Completed and operation and maintenance of irrigation systems by users' associations.</p> <p>Production is intensified and producers enjoy higher yields and incomes.</p> <p>Production and marketing services provided for producers and associations.</p>	<p>100% of irrigation systems have been transferred to users' associations at the end of project execution.</p> <p>100% of associations are able to cover 100% of irrigation system operating and maintenance costs at the end of project execution.</p> <p>At the end of the second year of execution, there is a 20% increase in the volume/value and diversity of irrigated farm output, over initial levels.</p> <p>At the end of the first year, 20% of producers (including women) in 100% of associations have been trained; 30% at the end of the second year, 40% at the end of the third year, and 50% at the end of the fourth year.</p>	<p>Annual report of MAG. Reports of FEDARES.</p> <p>Annual report of MAG. Reports of FEDARES</p> <p>Official statistics from the Central Bank and MAG.</p> <p>Statistics from users' associations and FEDARES. Annual reports of MAG.</p>	<p>Beneficiary water users' associations have enhanced capabilities, once the training phase is concluded.</p> <p>Local communities and irrigation associations make counterpart contributions to project execution and maintenance.</p> <p>Producers and associations implement recommendations of FEDARES, MAG, and CENTA.</p>

Narrative Summary	Indicators	Means of Verification	Assumptions
COMPONENTS			SUBCOMPONENTS TO COMPONENTS
COMPONENT 3.1 SINALIT established	<p>The National Steering Committee (COPIN) meets at least four times a year. At least 10 Regional Steering Committees (COPIRs) are established within four years and are meeting at least four times a year</p> <p>The COPIN Executing Unit implements COPIN directives.</p> <p>The Executing Unit of each COPIR implements the directives of the respective COPIR.</p> <p>Component execution is transferred from the COPIN executing unit to the national entity created in accordance with the consultants' proposal, within two years.</p>	Annual reports of the COPIN and COPIRs	<p>The government maintains its support for SINALIT.</p> <p>CENTA gradually performs policy-setting and regulatory functions.</p>
COMPONENT 3.2 funding available for generation and transfer.	At least US\$1.5 million has been deposited to this subcomponent account and allocated for technology generation and transfer within four years	Annual reports of the COPIN	National counterpart funds are available
COMPONENT 3.3 SINALIT's long-term institutional sustainability.	The MAG submits the findings of the study to the Bank.		The findings of the study are acceptable to the Bank.

PROCUREMENT: AGRIBUSINESS REENGINEERING PROJECT (ES-0119)

PROCUREMENT / ACTIVITY	FINANCING		METHOD	PREQUALIFICATION	PUBLICATION			
	IDB	LOCAL			GPN (PROJECT)	SPN		
						DATE	PUBLICATION	
							INT.BUSINESS	LOCAL
TRACTING OF 53 CONSULTANTS (BETWEEN US\$2,800 & US\$200,000)	2.781.000	486.000	LCB	NO	YES	ene-02	NO	YES
JECT MANAGEMENT (5); AGRIBUSINESS CENTER (3); INTERNAL CONSULTANTS FOR AGRIBUSINESS TER (8); PHYTOSANITARY PROTECTION (29); REHABILITATION & TRANSFER OF IRRIGATION SYSTEMS								
INTERNATIONAL CONSULTANTS IN IRRIGATION (2)	630.000		ICB	YES	YES	ene-02	YES	YES
INTERNAL AUDITS (4) TO BE PROCURED ONE PER YEAR AT A COST NOT TO EXCEED US\$30,000 EACH	120.000	-	LCB	NO	YES	1/2002 TO 2005 (ONE PER YEAR)	NO	YES
REHABILITATION OF IRRIGATION SYSTEMS (4 CONTRACTS WITH CONSTRUCTION FIRMS) AVERAGING 2.4 MILLION EACH	8.679.000	2.653.000	ICB	YES	YES	jul-02	YES	YES
COMPUTER EQUIPMENT (PRINTERS, SOFTWARE AND PERIPHERALS)	213.000	50.000	ICB	YES	YES	jul-02	YES	YES
ICLES (1 REFRIGERATOR TRUCK AND 1 8-TON TRUCK AND 22 ALL-TERRAIN VEHICLES)	445.000	154.000	ICB	YES	YES	jul-02	YES	YES
CE EQUIPMENT AND FURNISHINGS	124.000	44.000	LCB	NO	YES	mar-02	NO	YES
EQUIPMENT (BIOLOGICAL ANALYSES, PATHOGEN ANALYSES, TRACEABILITY)	128.000	53.000	LCB	NO	YES	mar-02	NO	YES
TRAINING IN VARIOUS AREAS, UP TO US\$110,000 PER TRAINING EVENT	517.000	131.000	LCB	NO	YES	2/2002 TO 2005	NO	YES
SERVICE CONTRACTS FOR ADMINISTRATION AND OPERATION OF AGRIBUSINESS CENTERS AND CENTERS (20 CONTRACTS WITH NGOs, UP TO A MAXIMUM OF US\$40,222), WITH AN ANNUAL AVERAGE US\$10,055	287.000	537.000	LCB	NO	YES	2/2002 TO 2005	NO	YES
SUPERVISION OF IRRIGATION INFRASTRUCTURE (2 CONTRACTS FOR US\$240,000 AND US\$760,000)	800.000	200.000	ICB	YES	YES	2/2002 TO 2005	YES	YES
TOTAL	14.724.000	4.308.000						

- Local competitive bidding

International competitive bidding

PROPOSED RESOLUTION

**EL SALVADOR. LOAN No. ____/OC-ES TO THE REPUBLICA DE
EL SALVADOR**

(Retooling Agroenterprise Project)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the República de El Salvador, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a Retooling Agroenterprise Project. Such financing will be for the amount of up to US\$25,000,000, from the resources of the Single Currency Facility of the Bank's Ordinary Capital, and will be subject to the "Special Contractual Conditions" and the "Financial Terms and Conditions" of the Executive Summary of the Loan Proposal.