

SUPPORT PROGRAM FOR EDUCATION TECHNOLOGIES

(ES-0108)

EXECUTIVE SUMMARY

BORROWER AND GUARANTOR: Government of El Salvador (GOES)

EXECUTING AGENCY: Ministry of Education (MINED)

AMOUNT AND SOURCE:

IDB:	US\$73.2 million (OC)
Local counterpart funding:	US\$ 8.1 million
Total:	US\$81.3 million

FINANCIAL TERMS AND CONDITIONS:

Amortization period:	30 years
Disbursement period:	5 years
Interest rate:	variable
Inspection and supervision:	1%
Credit fee:	0.75%

OBJECTIVES: The objectives of the program are: (i) to expand access to the third compulsory cycle of basic education in rural areas by means of distance education; (ii) to improve the children's performance between first and third grade in mathematics and Spanish through expansion of Interactive Radio; (iii) to improve the children's learning in basic education by developing new teaching practices based on application of technology to instruction; and (iv) to continue strengthening community participation.

DESCRIPTION: The GOES has assigned high priority to education in the 1990s, especially as part of the national reconstruction efforts following from the 1992 peace agreements. Considerable energies have since been devoted to building national consensus on the importance and urgency of education reform.

As a result of the success of the reforms in increasing school attendance and upgrading efficiency in the first two basic education cycles, El Salvador will experience a substantial increase in demand for grades seven through nine. According to conservative estimates, enrollment at this level will increase by 135,000 students by the year 2010, which would be equivalent to an increase of 60% compared with the 1996 enrollment.

Since 1995 the GOES has identified distance education as a potential means of expanding the coverage of third-cycle basic education. A pilot "Distance Learning" program has now been launched, based on Mexico's "Telesecundaria".

In its efforts to modernize and expand the secondary level, the GOES has made technology an important element of its strategy. The World Bank's Secondary Education Program will provide funds to equip all general secondary schools with Centros de Recursos para el Aprendizaje [Learning Resource Centers] (CRAs), spaces set aside in the schools and furnished with special equipment integrated with the new curriculum for this level to enhance the quality of the education provided.

More recently, the GOES has decided to extend the CRAs to a selected group of basic schools, in order to gain experience with the introduction of technology at that level and to help improve the quality of education. The GOES's strategy emphasizes the need to treat this initiative as a learning step from which experience will be gained for improving the effectiveness of technology application.

The extensive research conducted to date on strategies for introducing technology in basic schools has not identified any particular formulas as being more successful than others. While there is no lack of good experience in other countries, the findings of this research have not revealed any conclusive evidence regarding the factors that determine success or failure. However, the literature does identify the minimum requirements for successful introduction of technology, namely: (i) appropriate infrastructure; (ii) properly trained teachers; (iii) gradual introduction; (iv) continuous feedback by means of evaluation, monitoring and research; (v) direct community participation and commitment in the adoption of technology; (vi) strong leadership and management that ensure clear, sustained objectives; and (vii) adequate provision for covering recurrent costs. The GOES's decision to introduce technology in basic schools takes these important implementation requirements into account.

The program has three main components: the first seeks to increase third-cycle coverage in the rural sector; the second focuses on activities to enhance the learning process in basic education; and the third is intended to strengthen the MINED's evaluation capacity.

Component I. Expansion of the third cycle of basic education utilizing Distance Learning (US\$19 million)

The expansion envisaged in this component is 24,900 additional places. This increase in coverage would close 47% of the gap that would be created by the high rate of population growth and improvements in internal efficiency.

Component II. Improving the quality of basic education (US\$44 million)

This component seeks to: raise the quality of learning in the first through third grades by expanding the coverage of the Interactive Radio program; introduce technology in basic education through a pilot scheme in 9% of the country's basic schools; establish a fund for education projects to be carried out by the school administration organizations (ACEs, CDEs and CECEs) in such a way as to promote community participation and sustainability of the investments; and provide for complementary teaching aids.

Component III. Institutional strengthening (US\$4.6 million)

This component consists of activities to develop information for use in measuring the project's impact, i.e. strengthening the MINED's evaluation and research system for monitoring the effectiveness of the new technologies in teaching and learning processes. Technical assistance will also be included to ensure that the MINED has the technical capability to coordinate execution of the project.

**ENVIRONMENTAL AND
SOCIAL REVIEW:**

The CESI/TRG analyzed the environmental and social impact brief (ESIB) at its meeting of June 9, 1997. The infrastructure works are not expected to have an adverse effect on the environment (paragraph 4.11). The project will have a significant social impact since it is designed to raise the level of learning and the quality of basic education. It will also develop educational initiatives for the community, extend the successful efforts at community participation, and create greater awareness about the various cultural paradigms which could break down the gender stereotypes encultured in children (paragraphs 2.18 and 4.12 to 4.17).

BENEFITS:

The project supports the efforts underway to increase school attendance in remote communities and to raise the quality of basic education in general. The

greater part of the program beneficiaries are in the lower income decile, for whom education is a key requirement for social betterment.

RISKS:

One risk is that investment in the CRAs' equipment will not have a positive impact on learning sufficient to generate savings as a result of greater internal efficiency. To lessen this risk the design of the pilot scheme follows recommendations derived from international experience. These include the proper training of teachers in use of the equipment, teacher motivation, and the existence of a body outside the school proper capable of providing appropriate technical assistance. A plan will also be drawn up detailing the actions necessary for the introduction of technology in the schools.

A second risk has to do with the simultaneous demands from other projects, the availability of local counterpart funding, and the increase in recurrent costs. A study on the project's financial impact concludes that its financial requirements are realistic if the GOES maintains its budgetary goals for the sector.

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

The IDB's strategy in education is to support education reform with an integral approach. For a country with the education characteristics of El Salvador this means expanding coverage and substantially improving quality, using the most effective means available. In the medium to long terms, it is especially important: (i) to update the curricula, methods, materials, and equipment used for education; (ii) to intensify and improve teacher training; (iii) to strengthen the MINED's capacity to manage the education systems; (iv) to develop innovative and cost-effective ways of expanding coverage; and (v) to strengthen the participation of communities and families in running the schools.

**EXCEPTIONS TO
BANK POLICY:**

See section on procurements below.

**PROCUREMENT OF
GOODS, WORKS, AND
CONSULTING
SERVICES:**

As an exception to the procedure for competitive public selection of consultants, direct contracting is recommended for: (i) the Social Investment Fund for Local Development (SIF) for execution of the civil works; (ii) the Central American Institute of Technology (ITCA) for establishment of the technological resource centers; and (iii) the United Nations Development Programme (UNDP), as procurement agency for goods and services. These agencies will handle all procurement, consultant hiring, or other

required activities in accordance with Bank procedures. Such procurements are consistent with chapter GS-403 of the Procurement Manual (paragraphs 3.4 to 3.7 and 3.16 to 3.19).

Contracts for goods, works, and consultancy services will be in accordance with Annex B of the loan contract. The ceiling amounts above which international competitive bidding will be required would be as follows: US\$200,000 for consultancy services; US\$250,000 for goods; and US\$1 million for construction works. Goods, works, and consultancy services costing less than the above amounts will be subject to simplified procedures attached to the loan contract agreed on with the Bank, and consistent with its policies.

Bank supervision of procurements financed with program funds will be performed by ex post evaluation of a random sample.

**POVERTY
TARGETING:**

Component I is geographically focused on rural communities, where the correlation between rural conditions and poverty is high. Component II geographically targets rural and marginal urban communities where poverty, measured by unmet basic needs, is high. All the components use repetition and school performance indexes to identify the most vulnerable groups. The program therefore qualifies as comprising poverty-targeted investments under the geographic criterion.

**SPECIAL
CONTRACTUAL
CONDITIONS:**

Conditions precedent to the first disbursement

- (i) Submission of evidence that the MINED has concluded agreements with the SIF, UNDP, and ITCA (paragraph 3.4).
- (ii) Submission of the first annual work program (paragraph 3.19).

Other contractual conditions

- (i) For Subcomponent 2, introduction of learning technology, the MINED will draw up a plan of action for the introduction of computers in the schools; this plan must be submitted to the Bank for approval prior to the first disbursement from this subcomponent.
- (ii) For Subcomponent 3, fund for community education projects, the MINED will draft the operating rules of the fund. These rules must

be submitted to the Bank for approval prior to the first disbursement from this subcomponent (paragraph 3.12).

- (iii) The project executing units, with the support of project management, will prepare the annual work plans indicating the activities, schedule, and budget for each year. These programs will cover the period from January through December, so that the MINED can include the project's budgetary requirements in its request for funding for the next year (paragraph 3.19).
- (iv) The paragraphs listed below describe other contractual conditions, namely: paragraph 2.22, cost and financing of the programs; paragraph 3.22, retroactive financing of up to US\$100,000; paragraph 3.23, recognition of expenditures of up to US\$50,000; and paragraph 3.27, audit.

I. FRAME OF REFERENCE

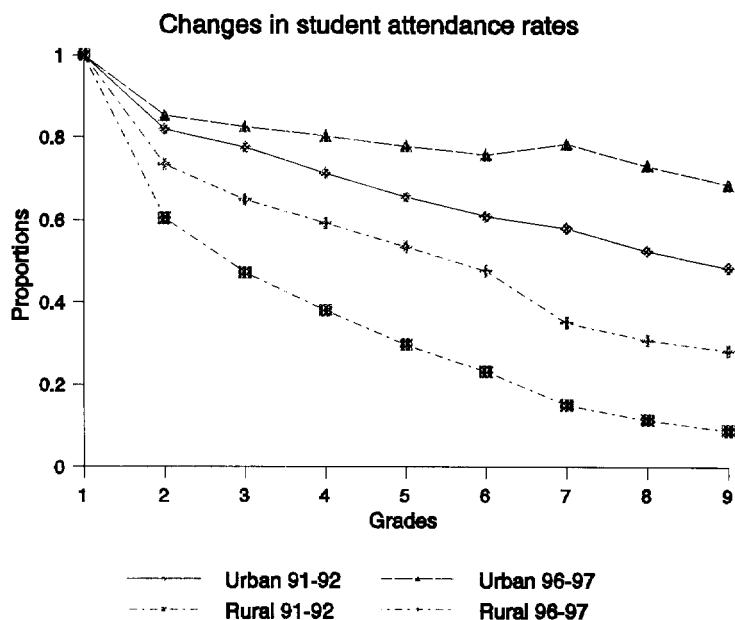
A. Education reform

- 1.1 The GOES has assigned high priority to education in the 1990s, beginning in particular with the national reconstruction effort following signature of the 1992 peace agreements. Since that time considerable energies have been devoted to building national consensus on the importance and urgency of education reform.
- 1.2 The most prominent features of the reforms undertaken are: (i) clear priority assigned to reform of basic education, expanding coverage and curricula with greater attention to the inputs needed to improve the quality of education; (ii) attention to the inequalities between the rural and urban sectors; and (iii) decentralization and community participation as primary strategies. Greater community participation has been achieved particularly through establishment of the Asociaciones Comunes para la Educación [Community Education Associations] (ACEs), the Educación con Participación de la Comunidad [Education with Community Participation] (EDUCO) program, and the Consejos Directivos Escolares [School Management Councils] (CDEs) in the regular schools; (iv) legal reforms aimed at supporting overall transformation of the education system; 1/ (v) introduction of innovations that have received international attention and favorable evaluations, 2/ among which the EDUCO program is an outstanding example (other programs include a pilot program on the use of video to expand the coverage of third cycle basic education); and (vi) reform and strengthening of the Ministry of Education (MINED), equipping it to formulate, supervise and evaluate education policies. Evaluation of student performance has recently been introduced and significant steps have been taken toward improving the availability and reliability of data on the education system.
- 1.3 The impact of these reforms is evident, despite the brief time that has elapsed since their introduction. Major transformations have occurred in the first two cycles of basic education. Firstly, there has been a significant expansion of coverage in the rural sector. The gross school attendance rate for the first six grades rose from 92% to 128% over six years, while the rate for seventh through ninth grade went up from 20% to 38% over the same period. Secondly, the internal efficiency at this level has improved significantly in both the urban and the rural sectors. In the

1/ Higher Education Act of 1995, General Education Act of 1996, and the Teaching Profession Act of 1996.

2/ Ministry of Education. National Directorate of Evaluation and Research. "Impact Evaluation of the EDUCO Program". San Salvador, mimeo. 1997.

rural sectors only 23% of the cohort graduated from sixth grade in 1991, compared with 47.7% today. Illiteracy was reduced from 40% in 1988 to 25% in 1996. These and other achievements have encouraged the GOES to set itself new goals for education reform.



- 1.4 Organization and structure. Formal education in El Salvador comprises three years of preschool education, nine years of basic education (divided into three cycles of three years each), two years of secondary education (plus an additional one for the technical options) and higher education. Technical and vocational training is provided by a number of public and private institutes and NGOs at the secondary and advanced levels.

Table 1. 1997 Total Enrollment

	Urban			Rural		
	Girls	Boys	%	Girls	Boys	%
1-3	113,912	118,822	78.0	161,059	176,043	98.2
4-6	93,250	92,056	77.8	86,150	91,549	97.8
7-9	83,369	83,083	76.7	34,546	38,421	95.5
10-12	79,024	72,591	53.6	0	0	0
TOTAL	369,555	366,552	72.6	281,755	306,013	97.8

- 1.5 Financing. Public funding for education was severely cut back in the 1980s and early 1990s, as a result of the war and the accompanying reduction of economic activity. Spending on education in 1992 was equivalent to 86% of the 1980 figure. ^{3/} Expenditure on education as a percentage of GDP fell from 3.6% in 1980 to 1.5% in 1992. This made El Salvador one of the countries applying the smallest proportion of its revenue to the sector at the start of the decade. ^{4/}
- 1.6 The decline in funding was also the result of a markedly reduced budget allocations to education. As a percentage of the total budget, funding for education fell from 24% in 1980 to 13.6% in 1992. The education reforms now in progress have begun to reverse that trend, public spending on education having been brought up to some 2% of GDP in 1996. The GOES has set a target of 3% of GDP by the year 2000. Aside from more funding, greater efficiency in the use of resources already available is clearly needed. The persistently high repetition rates in the system suggest there is substantial room for improvement in the use of said resources.
- B. Challenge posed by education reform
- 1.7 Expanding the coverage of third-cycle basic education. As a result of the reforms' success in increasing school attendance and improving efficiency in the first two cycles of basic education, El Salvador will experience a sizable increase in demand for grades seven through nine. Conservative projections (i.e. assuming internal efficiency of the first six grades to remain constant through the next ten years) show enrollment at this level increasing by 135,000 students by the year 2010, a 60% increase over 1996 enrollment.
- 1.8 The increase in third-cycle enrollment should be much more pronounced in the rural sector than in the urban. While total enrollment will increase at roughly the same pace in both sectors, rural enrollment in grades seven through nine will grow 30% faster than urban enrollment in the same grades. Expanding coverage accordingly can be viewed as the greatest challenge facing the education system. The number of third-cycle basic education sections in urban areas is currently more than double the number in rural areas.
- 1.9 Expansion of coverage for secondary education. The net attendance rate at the secondary education level was only 29% in 1992.

^{3/} Echart, M., J. L. Bour and D. Artana "Análisis Económico del Sistema de Educación en El Salvador", mimeo. 1997.

^{4/} Reimers, F. "La Formación de Recursos Humanos: Desafíos y Oportunidades", in Reimer, F. (Coordinator) La educación en El Salvador de Cara al Siglo XXI: Desafíos y Oportunidades. UCA Editores, San Salvador. 1995.

Secondary schools - half of which are private - are concentrated in San Salvador, with resultant inequality of access for the rural population. As with the third cycle, the demand pressures for secondary education will increase as a result of improvements at the lower levels. Measures to cope with the coverage problem at this level will have to be accomplished by rationalization of the secondary options available combined with extensive curriculum changes, some of which are already envisioned in the World Bank's Secondary Education Program.

1.10 Improvement of the quality of basic education. The evaluation of learning accomplishments begun in 1994 and continued into 1996 produced measurements from which policy conclusions can be derived. The findings show that performance remains low throughout the education system. As is to be expected, the performance of the schools located in urban areas is consistently better than that of rural schools. Considering in addition the continued inefficiency of basic education, notwithstanding the advances made in the past five years, it can be concluded that raising the quality of this level is still a fundamental challenge for the education system.

1.11 The GOES has been investing resources and concentrating international funds on better equipping the system with basic inputs for learning in the schools, such as textbooks, teachers' manuals and teacher training. In the past two years the GOES has been exploring the use of technology as an additional resource for upgrading the quality of basic education. In 1993, the MINED Education Quality Analysis Unit (CAES) conducted a pilot study to determine the effects of a radio program on student learning in mathematics between the first and third grades. Students assigned to the groups with interactive radio posted an improvement in their performance, especially girls and rural students. The results achieved with interactive radio warrant its extension to the school system as a whole. At the same time, MINED staff have been familiarizing themselves with the potential of computers for supporting learning. Visits have been paid to model experiments in other countries and strategies have been outlined for introducing this type of technology in El Salvador.

C. The role of technology in education in El Salvador

1.12 Since 1995 the GOES has identified distance education as a potential means of meeting part of the need for expansion of third-cycle basic education. A "Teleaprendizaje" (distance learning) pilot program, based on the model of the Mexican "Telesecundaria" program, has now been launched. This pilot program is underway in a total of eleven schools, four of which are rural EDUCO schools.

1.13 With distance learning, one teacher may cover several grades employing video tapes and written workbooks as teaching instruments. Instead of transmissions beamed by satellite, distance learning is based on video libraries. The program's

impact in the rural schools included in the pilot program has been excellent in terms of the teacher-student relationship and depth of content. Based on this pilot experiment, the GOES proposes to extend the program to a larger number of rural schools and to make it the chief instrument for expanding third-cycle coverage in rural areas.

- 1.14 International experience shows that successful distance education programs resolve specific well-defined problems and are of manifest value for a clearly specified market. Moreover, distance learning education programs, like Telesecundaria in Mexico, have proven even more cost-effective than formal education. This condition is met in the case of El Salvador, since this type of technology will be used specifically for expanding coverage in rural areas for grades seven through nine.
- 1.15 The other critical aspect to be considered is the cost structure of these programs, which are characterized by high fixed costs and low variable costs. In the case of El Salvador, a considerable saving in fixed costs is possible because the programming draws on the lessons produced by the Mexican Educational Television Unit (UTE) for that country's "Telesecundaria" program. This limits the production cost for El Salvador to the cost of adapting the lessons donated by Mexico to take care of the cultural or curriculum differences between the two countries.
- 1.16 In its efforts to modernize and expand the secondary level, the GOES has turned to technology as a major element in its strategy. The World Bank's Secondary Education Program will provide funds for equipping all general secondary schools with Learning Resource Centers (CRAs), which are spaces set aside in the schools with a set of equipment integrated with the new curriculum for this level and aimed at upgrading the quality of education provided.
- 1.17 More recently, the GOES has decided to extend the CRAs to a selected group of basic schools, in order to gain experience in the introduction of technology and quality improvement at that level. Under GOES strategy, this initiative is viewed as a learning step to gain experience in the effective application of technology.
- 1.18 Evidence shows that introducing audiovisual and computer technology in primary-level schools has a positive effect on learning in developing countries, 5/ although opinions remain divided as to the cost-effectiveness of such measures. The cost of procuring the equipment is high, and even though the social benefits are potentially great, they are diffuse and observable only over the long term in many cases. These benefits can include: greater

5/ Hawkrigde, D., Jaworski, J and H. McMahon "Computers in Third-World Schools: Examples, Experience and Issues". St. Martin Press, New York. 1996.

student motivation; motivation of teachers and parents; change of attitude regarding technology; improvement in teaching methods; group work; critical thinking and analytical capability; and of course higher achievement.

- 1.19 The considerable amount of research done to date on strategies for introducing technology in basic schools has not found certain formulas to be more successful than others. Although there is no lack of good experience in various countries, the findings of this research have not produced conclusive evidence regarding the factors determining success or failure. ^{6/} However, the literature identifies the minimum requirements for successful introduction of technology, such as: (i) appropriate infrastructure; (ii) properly trained teachers; (iii) gradual introduction; (iv) continuous feedback by means of evaluation, monitoring, and research; (v) direct community participation and commitment in the adoption of technology; (vi) strong leadership and management with clear sustained objectives; and (vii) adequate provision for covering recurrent costs.
- 1.20 The GOES's decision to introduce technology in basic schools takes these important implementation-related questions into account since: (i) the project will be conducted on a pilot basis, reaching 9% of the country's basic schools with intensive monitoring, evaluation and research to assess its relevance and point out adjustments needed for its implementation; (ii) preliminary studies to assist in determining the best strategy for introducing technology, and in considering the alternatives the MINED has devoted substantial time to internal discussions enriched by visits to experiments underway in other countries; (iii) the initiative will be focused on schools serving the most vulnerable populations; international experience demonstrates that introduction of computers and audiovisual aids in schools serving socially disadvantaged children favorably impacts the motivation of both teachers and students, and tends to spur greater involvement by parents, all of which is fully consistent with the objectives of decentralized management of the Salvadoran education system; and (iv) the projected investment includes substantial funds for training teachers to use the new technologies and for developing technical and pedagogic support for the schools through the MINED and its decentralized agencies.

D. The country's and the IDB's strategy in the education sector

- 1.21 The IDB's strategy in education is to support education reform following an integral approach. For a country with the educational characteristics of El Salvador, this means expanding coverage and substantially improving quality using the most effective means

^{6/} Collis, B., Knezek, G.A., K. Lai et al. Children and computers in schools. LEA publishers, New Jersey. 1996.

available. In the medium and long term, it will be especially important to: (i) update curricula, methods, materials and equipment; (ii) intensify and improve teacher training; (iii) strengthen the MINED's capacity to manage the education system; (iv) develop innovative and cost-effective ways of expanding coverage; and (v) foster participation by communities and families in running the schools.

- 1.22 Educational reform in El Salvador is based on a broad process of consultation with relevant sectors of society: private business, political parties, teachers, universities, the media, students, and parents. The aims of this reform are: (i) increased coverage; (ii) institutional modernization; (iii) improved quality; and (iv) the inculcation of human, ethical and civic values. To increase coverage, new means of service delivery, greater participation by civil society and the expansion of education infrastructure are being pursued. Quality will be improved by changes in curricula, programs taking an integrated approach, educational evaluation, teacher training, and value inculcation. Institutional modernization will consist of redefining MINED's role, reforming the legal and regulatory framework, and revising the administrative structure through decentralization as well as simplification and modernization of bureaucratic systems.

E. Experience of the Bank and other donors in El Salvador

- 1.23 The project forms a logical extension of earlier loans by both the IDB and the World Bank to El Salvador. In 1992, the World Bank financed the Social Sectors Rehabilitation Program, which supported the EDUCO model. USAID funded the SABE (Strengthening of Basic Education) project, which focussed, inter alia, on the capacity for evaluating learning achievement. The initiatives launched under these two loans were consolidated in 1995 by means of the Basic Education Modernization Program (879/OC), cofinanced with the World Bank. The operation proposed here can concentrate on a limited but highly important number of challenges through application of educational technology because other fundamental input deficiencies in the education system are already being addressed. The actions envisaged also mesh with those to be carried out in the World Bank's Secondary Education Program.

II. THE PROGRAM, ITS COST AND FINANCING

A. Objective of the program

- 2.1 The objectives of the program are: (i) to expand access to the obligatory third cycle of basic education in rural areas by means of distance education; (ii) to improve the children's performance in mathematics and Spanish between first and third grades by expanding the use of interactive radio; (iii) to improve student learning at the basic level through development of new teaching practices based on technology application; and (iv) to continue strengthening community participation.

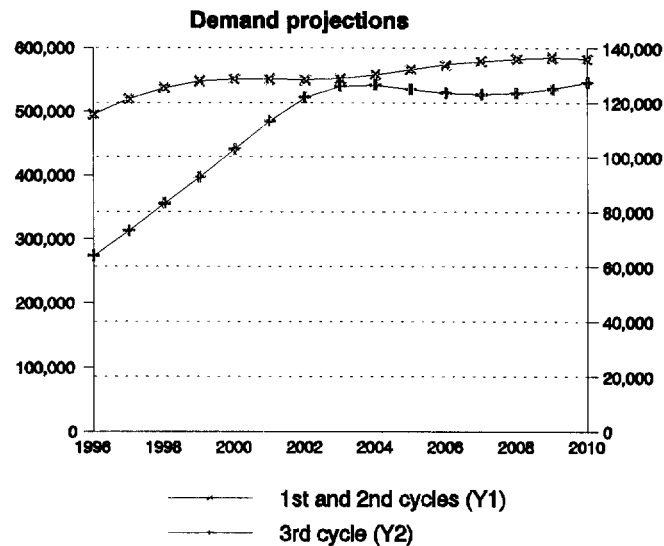
B. Structure of the program

- 2.2 The program has three main components. The first seeks to increase third-cycle coverage in the rural sector. The second consists of activities to raise the quality of learning accomplishment in basic education. The third is intended to strengthen the MINED's evaluation capability.

1. Component I. Expansion of third-cycle basic education - distance learning (US\$19 million)

- 2.3 The MINED has been trying out different approaches for expanding access to education services in the rural sector. This has been achieved for grades one through six by means of the EDUCO model, which promotes community participation in the delivery of education services. The GOES has implemented a pilot scheme to determine the feasibility of a distance-education model based on the Mexican "Telesecundaria" program. The model differs from the latter program in that it does not use satellite transmissions but instead employs a school video library for its regular programming. The results have been very positive in the rural sector, so the GOES considers this modality could be used to expand coverage.
- 2.4 The demand projections for the third cycle in the rural sector indicate that given the improvements in the efficiency of the first two cycles and the country's high rate of population growth, demand will increase from 73,000 students in 1997 to 126,000 by the year 2003. The expansion envisaged within this component is 24,900 additional places. This increase in coverage would close 47% of the gap created by high population growth and improved internal efficiency. The chief assumption underlying these projections is that improvements in the efficiency of the first two cycles will remain constant; if internal efficiency improves faster, the demand would be even greater.
- 2.5 The component will fund the opening of more than 500 sections of grades seven through nine in the rural sector based on the above-

mentioned model. These sections will be located in the EDUCO schools, where availability at this level in rural areas is most lacking. At this time only 0.4% of the EDUCO sections are for the obligatory third cycle. The teachers for these sections will be recruited using the EDUCO model, i.e. the MINED will transfer the funds to the ACEs, which will hire the teachers and supervise their work. The recurrent salary costs will be financed on a decreasing basis, such that the GOES will assume financial responsibility for them during the execution period (Table IV-2).



- 2.6 Technical assistance will be financed to ensure that the MINED will have the capacity to systematically adapt the programs included in the distance learning scheme. The MINED receives without charge the programs that Mexico is producing on a continual basis, but implementation of a successful distance model requires that the MINED permanently supervise the curriculum content of the programs and their relevance within the Salvadorian curriculum for that year.
- 2.7 Financing will also be provided to train teachers in the content and pedagogic techniques associated with distance education. The distance learning pilot has demonstrated that a part of this program's success in the rural sector is due to the fact that rural teachers are more used to working in a group context (because the majority of them work with a number of grades) and to being facilitators and advisers concerning the knowledge imparted.
- 2.8 The subcomponent will finance the necessary equipment and infrastructure so as to ensure the proper functioning of the model. By way of infrastructure, construction of one to three more classrooms for the EDUCO schools is envisaged. Many of these schools are currently operating with barely sufficient classroom

space for the first two cycles and would be hard-pressed to handle the addition of three further grades. Distance education also involves equipment that has to be set up in appropriate and secure facilities. The equipment of the distance learning model includes classroom libraries, television sets, video recorders, teachers' manuals, and student workbooks.

2. Component II. Raising the quality of basic education
(US\$44 million)

a. Subcomponent 1. Interactive Radio (US\$1.5 million)

- 2.9 The results of the interactive radio pilot program show a significant impact on performance in mathematics in first and second grades, especially among rural children and girls. Given the high level of repetition and over-age students in the initial grades of the first education cycle, the GOES considers that expansion of the program would raise student performance and thereby create significant savings for the system.

Table II-I. Interactive Radio Pilot — Average Achievement

	First Grade (*)		Second Grade (*)	
	Experimental	Control	Experimental	Control
Total sample	10.50	8.96	16.66	12.66
Rural total	10.49	8.69	16.77	11.87
Urban female	Not significant	Not significant	16.26	13.18
Rural male	Not significant	Not significant	17.80	12.71
Rural female	10.48	7.77	15.71	10.95

(*) Number of answers correct out of a total of 24 for 1st grade and 30 for 2nd.

- 2.10 This subcomponent would expand coverage of the interactive radio program to grades one through three in all the country's schools. The program would cover mathematics and language skills with a view to reinforcing student learning and improving performance in those areas. The number of beneficiaries would increase to around 570,000 students enrolled in grades one, two, and three. The subcomponent would seek to maximize benefit from the investments already made under the SABE project by financing additional technical assistance for preparation of the new areas (language skills), together with manuals and workbooks, equipment, teacher training, and impact evaluation and monitoring.

b. Subcomponent 2. Introduction of learning technology
(US\$33.1 million)

- 2.11 The program envisages a pilot in 9% of the basic-level schools only (secondary schools are being covered by the World Bank program). This percentage includes a variety of schools but is restricted to rural and low-income urban areas, where greater progress in learning achievement is required. The program will benefit 500,000 children enrolled in said schools over a six-year period (calculation based on the useful life of the equipment). However, if the cost-recovery programs for equipment maintenance and replacement are successful, the number of beneficiaries would grow to over one million in 11 years. In addition, the community as a whole should benefit, since the ACEs and CDEs are expected to generate demand for services connected with the CRA technology.
- 2.12 To ensure that the introduction of technology will be successful, its design has taken into account the main lessons learned from other experiments (paragraph 1.19). By way of preparation, a plan of action is being drawn up for the introduction of technology in the schools. The motivation of the school community will be a selection criterion for the schools to be included in the pilot.
- 2.13 Vandalism by gangs of adolescents known as "maras" is becoming a serious problem in El Salvador. The phenomenon is growing with gangs displaying high degrees of antisocial behavior. This poses a risk to the security of equipment, and various measures have been taken under the subcomponents to lessen it. First, space for the CRAs will be specially designed to provide greater security. Although the CRAs will be located in specifically designated rooms, their furniture will be movable so as to permit use of the equipment as part of the regular classroom interaction. In addition, the school community's training will emphasize security. Finally, security for the equipment can only be assured if the community takes ownership of the project and responsibility for proper operation and safety. The main objective of the subcomponent is to ensure that the community effectively assumes responsibility for the CRA.

Table II-2. Distribution of the Schools in the Pilot

School size (enrollment)	Rural non-EDUCO	EDUCO	Urban	Total
Up to 100	25	5		30
100 to 240	151	39		190
240 to 400	77	15	48	140
400 to 800	5	2	13	20
over 800	3		17	20

- 2.14 **Training of education agents** (US\$2.3 million). Financing will be provided to teachers and the school communities (ACEs and CDEs) in use of the learning equipment. The ACEs and CDEs will be trained in administration of the funds for equipment maintenance and cost-recovery strategies by means of extracurricular activities to generate funds for equipment replacement and sustainable maintenance after the execution period.
- 2.15 **Curriculum development** (US\$2.5 million). Technical assistance will be funded for the development of teachers' manuals for preschool and the three cycles of basic education. The production and distribution of these manuals and workbooks for teachers and students will also be financed.
- 2.16 **Technology resource Centers** (US\$20.8 million). The financing will be used to purchase furniture (US\$1.7 million) and equipment (US\$11.9 million) for the 400 schools. The equipment consists of computers, educational software, printers, a television set and a video library for the centers. The financing includes funds to maintain the equipment and furniture during the execution period (US\$1.3 million). The recurrent costs of hiring personnel to administer the centers will also be financed on a decreasing basis (US\$5.9 million). The EDUCO recruitment mechanism will be applied through the ACEs and CDEs.
- 2.17 **CRA infrastructure** (US\$7.5 million). For the introduction of technology to be technically feasible adequate infrastructure must be in place. Funds will be provided to adapt available space for the CRAs and – for schools (especially the EDUCO schools) lacking such space – to build additional classrooms. The financing includes maintenance funds to be administered by the ACEs and CDEs.
- c. Subcomponent 3. Community education projects fund
(US\$1 million)
- 2.18 Creation of the CRAs will provide installed capacity in the schools that does not exist today. To make the resources more sustainable,

the project will promote the development of community education projects. The projects will be programmed to complement the school schedules, so that the CRAs can function at night and on weekends. The creation of sustainable projects requiring one-time only financing will be encouraged. The projects will be designed to meet community education needs, such as literacy, accelerated education for young people, etc.. with priorities set by the communities themselves. An operating manual will spell out the technical rules for use of the fund to implement these projects.

d. Subcomponent 4. Complementary teaching aids (US\$8.4 million)

- 2.19 The diagnostic studies of the education sector performed under SABE and the Basic Education Modernization Program showed the lack of textbooks and supplementary teaching materials to be a major shortcoming in need of attention. More costly but highly effective items such as libraries, classroom reading materials, and science laboratory kits are rarely available. The shortage of such facilities and materials is more acute in the rural and low-income urban sectors. The Basic Education Modernization Program envisions providing only 200 laboratory kits for the third cycle of basic education. This subcomponent would provide an additional 1,600 laboratory kits to be distributed in the third-cycle schools in rural and low-income urban areas. Four hundred additional science libraries would also be financed, to increase the availability of scientific and technological texts for both teachers and students.

3. Component III. Institutional strengthening (US\$4.6 million)

- 2.20 *Evaluation, monitoring and dissemination* (US\$1.8 million). This component consists of activities to develop information for use in measuring the project's impact and strengthen the MINED's evaluation and research system for monitoring effectiveness of the new technologies in the teaching-learning process. Technical assistance will be funded to review the measurement instruments, update the information system, and conduct studies on the impact of the technologies. The communications plan contains actions to keep involved and interested groups informed so as to foster successful implementation of the different activities.
- 2.21 *Project administration* (US\$2.8 million). Short- and long-term consultants will be hired to help the MINED coordinate project execution. Logistical support for expenditures on stationery, fuel, furniture, and equipment will also be funded.

C. Cost and financing of the program

- 2.22 Table II-3 provides a breakdown of the program by source of financing and investment category.

Table II-3. Cost and Financing
(US\$ millions)

Categories	IDB	GOES	TOTAL
1. <u>Distance learning</u>	<u>15.9</u>	<u>3.1</u>	<u>19.0</u>
1.1 Furniture and equipment	2.0		2.0
1.2 Technical assistance	0.3		0.3
1.3 Teacher training	0.4		0.4
1.4 Printing of materials	2.2		2.2
1.5 Salaries	4.0	3.1	7.1
1.6 Operation and maintenance	0.3		0.3
1.7 Infrastructure	6.7		6.7
2. <u>Raising of quality</u>	<u>40.6</u>	<u>3.4</u>	<u>44.0</u>
1.1 Interactive Radio	1.5		1.5
1.2 Technology introduction	29.7	3.4	33.1
Training	2.3		2.3
Curriculum development	2.5		2.5
CRA equipment	17.4	3.4	20.8
CRA infrastructure	7.5		7.5
1.3 Education projects fund	1.0		1.0
1.4 Teaching aids	8.4		8.4
3. <u>Institutional strengthening</u>	<u>4.6</u>		<u>4.6</u>
1.1 Evaluation and monitoring	1.8		1.8
1.2 Project administration	2.8		2.8
4. <u>Audit</u>		0.25	0.25
5. <u>Finance charges</u>			
4.1 Interest	11.8		11.8
4.2 Insp. and supervision	0.73		0.73
4.3 Credit fee		1.35	1.35
Total	73.2	8.1	81.3
Percentages	90%	10%	100%

- 2.23 The total cost is estimated at US\$81.3 million, as detailed in the above table. Financing consists of: (i) US\$73.2 million from the Bank's ordinary capital (OC), in U.S. dollars through the Single-Currency Facility; and (ii) US\$8.1 million from the GOES. Since the program is classified as a poverty-targeted investment (PTI), 10 additional percentage points will be applied to the Bank financing. US\$32,000 for inspection and supervision and US\$11.8 million for interest will also be included as chargeable to the loan. The credit fee, a part of the program incremental recurrent expenditures, and the cost of the annual audits will be charged to the national counterpart. The GOES has requested that any resources available from the Intermediate Financing Facility

(IFF) for El Salvador during 1998 be allocated to this operation. The loan terms and conditions are detailed in the following table.

Table II-4. Loan conditions

Source of financing	Ordinary capital (IFF)
Currency	US\$ Single-Currency Facility
Conditions:	
Amortization	30 years
Grace period	5.5 years
Disbursement period	5 years
Interest rate	Variable
Inspection and supervision	1% of the total loan
Credit fee	0.75% of undisbursed balance

III. INSTITUTIONAL FRAMEWORK AND EXECUTION OF THE PROGRAM

- A. The borrower, the guarantor, and the executing agency
- 3.1 The borrower and guarantor for the loan would be the Government of El Salvador. The executing agency would be the Ministry of Education (MINED). Signature of an agreement between the borrower and the executing agency for the transfer of loan proceeds will be a condition precedent to the first disbursement. The MINED has extensive experience in executing programs financed by international donors. Its execution capacity has been amply demonstrated in projects funded by the World Bank and USAID. The MINED is currently executing the Basic Education Modernization Program financed by IDB and World Bank loans.
- B. Administration of the project
- 3.2 The execution of the project will be handled within the present organizational structure of the MINED, through a project operations management unit and existing units with operating and administrative responsibilities directly related to the project components. Overall responsibility will lie with the parties concerned, who will be supported by the management unit and a committee made up of the Vice Minister of Education, the General Manager and the managers of the project components. In performing its activities, the management unit will be supported by the following:
 - a. **Department of Curriculum Development**, responsible for execution of the Education Services Quality Upgrading component, through the different units involved. The Office of the Learning Resource Centers (CRAs) will be established under this unit and will work in coordination with the MINED's Information Technology Office. In addition to serving the CRAs, it will coordinate execution of the studies programs, evaluation systems, teacher manuals, student support books, school libraries, and science laboratories.
 - b. **The Department of Coverage Expansion**, will be responsible for executing the component for expanding access to education and improving services. The EDUCO unit will be responsible for the rural EDUCO School component.
 - c. **The National Directorate of Administration** will be responsible for administering procurement (through the Procurement and Contracting Unit - External Cooperation), and for accounting and finance (through the Financial-Institutional Secondary Unit - External Cooperation). Its chief obligations would be to monitor procurements and payments, keep the project records and financial accounts, and develop annual plans for national

financing of the projects, including funds for maintenance, teacher salaries, CRA technical personnel, etc.

- 3.3 The proposed structure appears appropriate for efficient execution of the project, since authority will be in the hands of staff in the MINED operating departments.

C. Other agencies and organizations participating in execution

- 3.4 The Social Investment Fund for Local Development (SIF), the United Nations Development Programme (UNDP), the Central American Institute of Technology (ITCA) and other providers of specialized services will participate with the MINED in executing the proposed program on the basis of agreements concluded for the purpose. As condition precedent to the first disbursement the MINED must submit evidence that agreements have been signed with the SIF, UNDP, and ITCA.

- 3.5 The SIF will ensure the efficient and timely execution of the civil works to be funded with program funds. The SIF has wide experience in the construction and rehabilitation of school infrastructure in isolated and remote areas. It is also familiar with the MINED's construction standards and the IDB's procurement rules and procedures.

- 3.6 UNDP will act as purchasing agency for MINED for goods and services financed by the program. All procurement will be handled by the UNDP. This agreement was set up for the previous loan (Modernization of Basic Education, 879/OC-ES) and has worked well. The arrangement is advantageous because the general agreement between the government and the UNDP grants exemption from value-added tax and removes such procurement from the jurisdiction of the Government Audit Office, which makes for a swifter purchasing and contracting process.

- 3.7 The ITCA will provide technical assistance for the establishment and implementation of the CRAs. The ITCA is an institution of acknowledged standing in El Salvador that possesses the technological expertise and experience required to successfully and efficiently perform the tasks by the program. This gives it a clear comparative advantage over other national institutions. The engagement of a national institution will enable transfer of technology to the MINED over a long-term relationship. The ITCA recently initiated working relationships with the European Union and the World Bank on similar topics for its secondary education program.

D. Execution of the program

- 3.8 The program will be executed over a five-year period, with a four-and-a-half-year resource commitment period.

- 3.9 The MINED will be responsible for coordinating and supervising implementation of the different program components. For **Component I, Expansion of the Third Cycle of Basic Education**, the Department of coverage expansion will be responsible for: (i) supporting the ACEs, CECEs, and CDEs in the promotion and development of Distance Learning; (ii) training MINED for adaptation of the Mexican program to the Salvadorian context; (iii) reproducing the materials and teachers' manuals; (iv) preparing the pedagogic standards, content, programs, methods, and teaching materials; and (v) designing teacher support and training programs regarding both content and the teaching techniques associated with distance education.
- 3.10 The Curriculum Development Department, which is responsible for **Component II - Raising the quality of basic education**, will coordinate activities under **Subcomponent I, Interactive Radio**, to: (i) train the technical staff in production and use of audiovisual materials; (ii) develop and implement workshops for reviewing, adapting and preparing the radio scripts; (iii) train teachers, directors, and supervisors to use the interactive radio program; (iv) develop workshops for review and adaptation of the mathematics and language lessons; (v) draft mathematics and language scripts; (vi) produce and record the radio mathematics and language programs; (vii) design and produce promotional materials; (viii) coordinate the national broadcasters participating in the program; (ix) distribute mathematics and language cassettes to the training centers and model schools; and (x) evaluate the impact of the interactive radio program.
- 3.11 The Department will coordinate activities under **Subcomponent 2, Introduction of technology in learning**, to: (i) design and prepare a plan of action for the introduction of technology in the schools; (ii) train the teachers, ACEs, CECEs, and CDEs in the use of the technological aids for learning, administration of the funds, and the design of cost-recovery strategies; (iii) develop and produce manuals and workbooks for students and teachers in preschools and the three cycles of basic education; (iv) equip the CRAs in accordance with technical standards; (v) evaluate final efficiency; (vi) monitor and evaluate student learning; and (vii) prepare the reports required.
- 3.12 Schools to be included in the activities of this subcomponent will be selected on the basis of technical criteria as follows: (i) schools in rural and poor urban areas, for which purpose the Action Plan to be prepared before signature of the contract must define the universe of rural and poor urban schools and indicate their geographic distribution, by municipality; (ii) schools located on MINED property; (iii) schools with the additional grounds necessary to expand the CRAs without encroaching on student play areas; (iv) basic level schools, i.e. offering at least one of the three cycles required for the basic level, with no intermediate-level; (v) schools with active ACEs, CDEs, or CECEs that have shown

interest in participating in the program; and (vi) schools connected to the electric power system. In addition, given the variations in size and type of schools included in the pilot during preparation of the Action Plan, and prior to the first disbursement from this subcomponent, the IDB and the GOES will jointly evaluate the feasibility of introducing variations on the model for the rural sector in order to maximize cost-effectiveness.

- 3.13 **Subcomponent 3, Funds for community education projects** is the subcomponent based on community priorities. The MINED will draw up the operating regulations of the fund, to be submitted to the Bank for approval prior to the first disbursement for this subcomponent.
- 3.14 The Modernization Unit will coordinate **Component III, Institutional Strengthening**, which will finance: (i) administrative and logistical support for execution of the program; (ii) strengthening of the school administration organizations (ACEs, CECEs, CDEs); (iii) the design and implementation of a system for monitoring and evaluating what is done; (iv) the review and improvement of current measurement instruments; (v) updating of the information system; and (vi) development of a communication plan to keep interested groups informed on the program's progress.
- 3.15 The **ACEs, CECEs, and CDEs** will participate in selecting and hiring the teachers and necessary personnel, in accordance with the current regulations, and will ensure the security, care, and maintenance of the equipment. They will also develop proposals for Subcomponent 3.
- 3.16 The **ITCA** will provide technical assistance to the MINED in: (i) identifying the equipment and software to be procured; (ii) training the teachers responsible for administering the CRAs, and other teachers, directors, and members of the CDEs, CECs, and ACEs in technical administration of the teaching personnel area; (iii) establishing support mechanisms for cooperation with the national telecommunications enterprises in connecting the CRAs with national and international telecommunications systems; (iv) equipment maintenance and repair; (v) developing and monitoring the pedagogic model incorporating the use of technological aids; (vi) supporting the design and production of teaching materials; and (vii) designing and implementing a system to link the education centers among themselves and with MINED technical units.
- 3.17 **UNDP** will act as procurement agent for all goods and services (individual consultants and consulting firms) using standard IDB bidding documents and following IDB procedures.
- 3.18 In accordance with the MINED's request, the SIF will assume responsibility for the bidding and contracting processes in respect of civil works, which will include the construction and

rehabilitation of classrooms and the construction and adaptation of related spaces. All the civil works will be carried out in accordance with rules set by the MINED. The following will be financed: (i) the repair of 100 schools; (ii) the replacement of 60 classrooms in 23 schools; (iii) the adaptation of 276 spaces for CRAs; and (iv) the construction of 124 new spaces for CRAs.

- 3.19 The program will also finance the administration fee connected with the services provided by the ITCA, UNDP, and SIF.

E. Annual work program

- 3.20 The project executing units, coordinated by the management unit and supported by the National Directorate of Administration, will prepare the annual work plans, which will include the activities proposed for the year, their timetable, and their budget. These programs will cover the period from January to December, so that the MINED can incorporate the project's budgetary requirements in its funding request for the following year. Submission of the first annual work program will be a condition precedent to the first disbursement.

F. Procurement for goods, works, and consultancy services

- 3.21 Goods, works, and consultancy services charged to program funds will be procured in accordance with Annex B of the loan contract. The ceiling amounts above which international competitive bidding would be required are as follows: US\$200,000 for consultancy services, US\$250,000 for goods and US\$1 million for construction works. Goods, works, and consultancy services costing less than these amounts will be subject to the simplified procedures attached to the loan contract.

G. Revolving fund

- 3.22 The revolving fund mechanism will be used in accordance with the Bank's current regulations and will be limited to 5% of the total loan amount.

H. Retroactive financing

- 3.23 It is recommended that retroactive financing of MINED expenditures be approved up to US\$100,000 to speed execution of the project.

I. Recognition of expenditures

- 3.24 It is recommended that expenditures against the national counterpart funding to hire additional personnel for program purposes be recognized up to US\$50,000.

J. Disbursements

- 3.25 Proceeds from the Bank's loan and the national counterpart will be deposited in a special account administered by the MINED. Payments for the procurement of goods and services will be made by the executing agency. The cumulative figures for expenditures or investments reported in the periodic accounts statements must relate solely to eligible expenditure items agreed on in advance with the Bank. The MINED will keep originals and/or copies of the contracts, orders, invoices, receipts, supplier certificates and other documents necessary to corroborate the reports submitted to the Bank. The documentation will be properly identified, archived, and made available to authorized IDB staff and the outside auditors upon request.
- 3.26 The Country Office will conduct ex post technical and financial inspections of the supporting documentation, including the archives and receipts, in respect of a random sample of 10% of the projects. The inspections will verify that the MINED archives contain disbursement request documents showing that the funds were used as specified in the loan contract. If discrepancies are found, a larger sample will be examined and the MINED will be notified of amounts deductible from future orders. These procedures were laid down in the previous loan and have worked well.
- 3.27 The program disbursement schedule will be as follows:

Table III-1. Schedule for disbursement of program resources

First Year	Second Year	Third Year	Fourth Year	Fifth Year
12%	26%	25%	27%	10%

K. Accounting and outside audit

- 3.28 The MINED will establish and maintain adequate accounts and records, in accordance with accepted accounting practices. The local ACEs, CECEs, and CDE's, with supervision by the central office, will also keep records on project resources and expenditures. The audit reports to be submitted to the Bank will include an opinion on the program funds transferred to the ACEs, CECEs, and CDEs, based on a random sample. These reports will be audited at the end of each fiscal year by a firm of independent auditors acceptable to the Bank. They are to be submitted as of the first year and throughout the entire project execution period. Payment for the annual audits will be the responsibility of the GOES.

L. Annual reports

- 3.29 The MINED will prepare annual reports using the main objectives and the monitoring and impact indicators agreed upon. These reports will serve as the basis for the annual reviews. The scope, form, and content of such reports will be agreed with the Bank.

M. Annual reviews and mid-term review

- 3.30 Throughout the execution period, the MINED and the IDB will conduct joint annual reviews no later than November of each year to evaluate the program's impact and performance and agree on any adjustments needed. This annual review will pay special attention to: (i) progress during the previous year; (ii) review and approval of the proposed annual work programs; (iii) budgetary needs for implementation of the annual plan for the following year; and (iv) evaluation of the efficiency of program administration and coordination and determination of any adjustments required. The supervision team will be made up of the project team, the Country Office specialist, and, if necessary, consultants.
- 3.31 The second review will be conducted mid-term to measure initial impact in relation to project objectives and indicators and to identify the lessons learned.

N. Bank supervision

- 3.32 The Bank Country Office in El Salvador will supervise program execution and the project team will conduct annual technical monitoring missions to review progress and the meeting of targets.

O. Ex post evaluation

- 3.33 In view of the innovative character of the components, the Program's impact will be evaluated in conjunction with the monitoring and evaluation activities planned for each of the components.

IV. FEASIBILITY AND RISKS

A. Feasibility of the program

1. Socioeconomic feasibility

- 4.1 The socioeconomic feasibility of the components was analyzed as follows: (i) for Component I, Distance Learning, the cost of the investments necessary to develop this modality for the number of potential beneficiaries was determined and compared with the unit cost of general secondary education; and (ii) for Component II, the incremental cost over the unit cost entailed by the introduction of this technology was analyzed. Both components are new and their educational effectiveness is as yet unknown. However, by way of illustration a hypothetical efficiency required for the proposed modalities to be declared successful was calculated. Periodic evaluations will also be made during the execution of the program to determine the level of cost-effectiveness of the two components.
- 4.2 *Distance learning.* Distance learning has been shown to be effective for rural areas in a pilot scheme carried out by MINED. In general, experiments in other countries (such as Mexico) show that distance learning can be as efficient, measured in terms of graduation rates, as the traditional modalities. As a rule, the cost of producing, distributing, and receiving the TV components raises the total cost of the distance modality. In the case of El Salvador, these costs are greatly reduced because the Mexican Government does not charge for the production cost of the audiovisual materials donated. It is important to bear in mind, however, that the most accurate comparison balances the cost of offering the traditional modality locally against the cost of providing distance education. Generally speaking, this comparison leads to the conclusion that distance education is the least-cost alternative for grades seven and above. The table below compares local costs with the cost of distance learning in urban areas only. The differences will likely be even greater in comparison with rural areas.

Table IV-1. Distance Learning and Unit Cost (Grades 7-9)
(US\$ per month)

	Distance Learning	General
Investment	3.28	2.00
Recurrent	147.60	193.00
Per capita	150.34	195.00

- 4.3 Component II, Improving quality. The education system loses 146 million colones annually as a result of repetition and dropouts in the first three grades. The interactive radio program is expected to reduce repetition and dropout rates by 10%-30%, producing savings on the order of 15 to 45 million colones per year.
- 4.4 The introduction of technology in basic education through the CRAs will entail capital costs of roughly US\$18 million, not counting the cost of training since the most of the spending in that area is for preparation and definition of the training content. The investment costs are based on a cost per beneficiary of around US\$66.2. El Salvador currently spends an average of US\$161 per student on basic education. The introduction of technology would raise this cost by 41%. Accordingly, if El Salvador decides to expand the pilot to the entire basic education system, the budget would come to about 3.6% of GDP in 1998. 1/
- 4.5 To meet the investment costs connected with Subcomponent 2 (US\$4.5 million per year or an additional US\$66.2 per student) and to maintain the same level of overall expenditure on basic education, the basic-level education system as a whole would have to reduce the repetition and dropout rates in grades one through seven by some 8%. These reductions would generate savings of around US\$4.5 million, which would offset the investments required for Subcomponent 2. The benefits relate to improvements in student learning levels. To establish a baseline for measuring the impact on learning, performance tests will be conducted in the 400 schools selected during the first year of the program. Learning will then be measured as part of the mid-term and final evaluation activities.

2. Financial feasibility

- 4.6 Education expenditure fell drastically in the 1980s, as a percentage of both GDP and the national budget. Since the signing of the peace agreements this expenditure has gradually risen again, reaching 2% of GDP in 1996. However, this is still very low by both international and regional standards. The GOES is committed to a gradual increase of the education budget. This commitment is reflected in the policy letter annexed to loan 879/OC-ES (Modernization of Basic Education), which sets out targets for the education budget as a percentage of GDP, namely 2.76% for 1998, 2.88% for 1999, and 3% for 2000. To date these targets are being met, largely because of the high degree of national consensus on the importance of education.

1/ The capital costs have been amortized over the useful life of the equipment and divided by the average number of beneficiaries who will use it during this period.

- 4.7 Table IV-2 shows a breakdown of costs by year of execution, as well as the volume of recurrent costs to be generated beyond project completion, which the MINED would then have to assume. These recurrent costs are on the order of US\$6.7 million per year, or about 1% of the total education budget for each year after project completion.

Table IV-2. Costs by Category and by Source of Financing

	Implementation					Operation		
	1998	1999	2000	2001	2002	2003	2004	2005
Total Project Costs (US\$ millions)								
Investment	8.1	15.3	13.3	13.1	0.0	0.0	0.0	0.0
Recurrent	0.0	2.2	3.5	5.1	6.7	6.7	6.7	6.7
Total	8.1	17.5	16.8	18.2	6.7	6.7	6.7	6.7
Decreasing Financing of Salaries by Source (%)								
IDB	0	100	75	50	25	0	0	0
GOES	0	0	25	50	75	100	100	100
Total	N/A	100%	100%	100%	100%	100%	100%	100%

- 4.8 Table IV-3 represents the impact of the project on the education sector budget. The assumptions concerning the projections included in the table are that both the GDP and the education budget will grow by 5% p.a. It is important to note that the GOES has been meeting the education budget increase targets agreed on in previous loans.

Table IV-3. Financial Impact of Project
(in constant 1997 prices)

	1998	1999	2000	2001	2002	2003	2004	2005
GDP (US\$ billions)	12.2	12.8	13.5	14.2	14.9	15.6	16.4	17.2
Central Government education budget (in US\$ millions)	311.6	358.3	412.1	473.9	497.6	522.5	548.6	576.0
Education budget as % of GDP	2.5	2.8	3.1	3.3	3.3	3.3	3.3	3.3
Project Costs								
Investment	8.1	15.3	13.3	13.1	0	0	0	0
Recurrent	0.0	2.2	13.5	5.1	6.7	6.7	6.7	6.7
Total (US\$ millions)	8.1	17.5	16.8	18.2	6.7	6.7	6.7	6.7
Project Costs as % of education budget	2.6	4.9	4.1	3.8	1.3	1.3	1.2	1.2

- 4.9 Finally, as part of the preparation of this project, the financial impact of the various international education sector loans on the education budget was analyzed. This is particularly important because the MINED would be executing upwards of five projects during the implementation of this operation.
- 4.10 One study ^{8/} concluded that the projects with international financing would not present problems in terms of the required GOES counterpart funding. In point of fact, if the total GOES local counterpart funding is compared with the projected ordinary budget, the requirements fluctuate between 3.1% to 1.6% of the budget over the life of the program. This operation will require funding representing around 1% of the budget. There would not therefore appear to be any constraints on its availability as and when needed. It is important to note that each of the alternatives presumes comparable growth (3% in the year 2000) in public spending on education.

^{8/} Echart, M., J.L. Bour and D. Artana "Análisis Económico del Sistema de Educación de El Salvador", mimeo, 1997.

Financial impact of the education projects	1998	1999	2000	2001	2002	2003	2004	2005
	Implementation					Operation		
Total expenditure on:								
- Modernization of basic education	16.3	22.4	18.5	1.8	1.8	1.8	1.8	1.8
- Secondary education program	7.6	23.2	21.8	14.4	10.0	3.2	3.2	3.2
- ES-0108	8.1	17.5	16.8	18.2	6.7	6.7	6.7	6.7
- Total	32.0	63.1	57.1	34.4	18.5	11.7	11.7	11.7
Total as % of budget	10.3	17.6	13.8	7.2	3.7	2.2*	2.2*	2.2*

* Total recurring costs generated by all projects

B. Social impact and impact on the environment

- 4.11 *Environment.* The infrastructure works to be funded are: (i) small-scale construction and rehabilitation of existing areas; and (ii) construction and adaptation of the existing CRA areas. These works are not expected to have any adverse impact on the environment. The construction will be handled through the SIF, which acts as works manager for the MINED, in accordance with MINED environmental rules and standards.
- 4.12 *Beneficiaries.* The project will have a considerable social impact, supporting efforts to increase school attendance in the most remote communities and raise the quality of basic education in general. Most of the program beneficiaries are in the lower income deciles and concentrated in rural areas, so for them education is a key element for social betterment.
- 4.13 *Low-income beneficiaries.* Geographically, Component I targets rural communities where the correlation between their rural location and poverty is high. Component II targets rural and low-income urban areas where poverty, measured in terms of unmet basic needs, is considerable. All the components use repetition and school performance indexes to identify more vulnerable populations. The program accordingly qualifies as a poverty-targeted investment (PTI) under the geographic criterion.
- 4.14 *Gender considerations.* The education statistics broken down by gender show that gross population absorption in the education system is relatively homogeneous. However, in the urban sector females tend to remain in the system longer than males, whereas in the rural sector fewer females attend school than males. These trends show no marked increase among older females, suggesting that their lower attendance is not the result of increased opportunity

cost, but stems from cultural factors influencing the value placed by parents on educating girls.

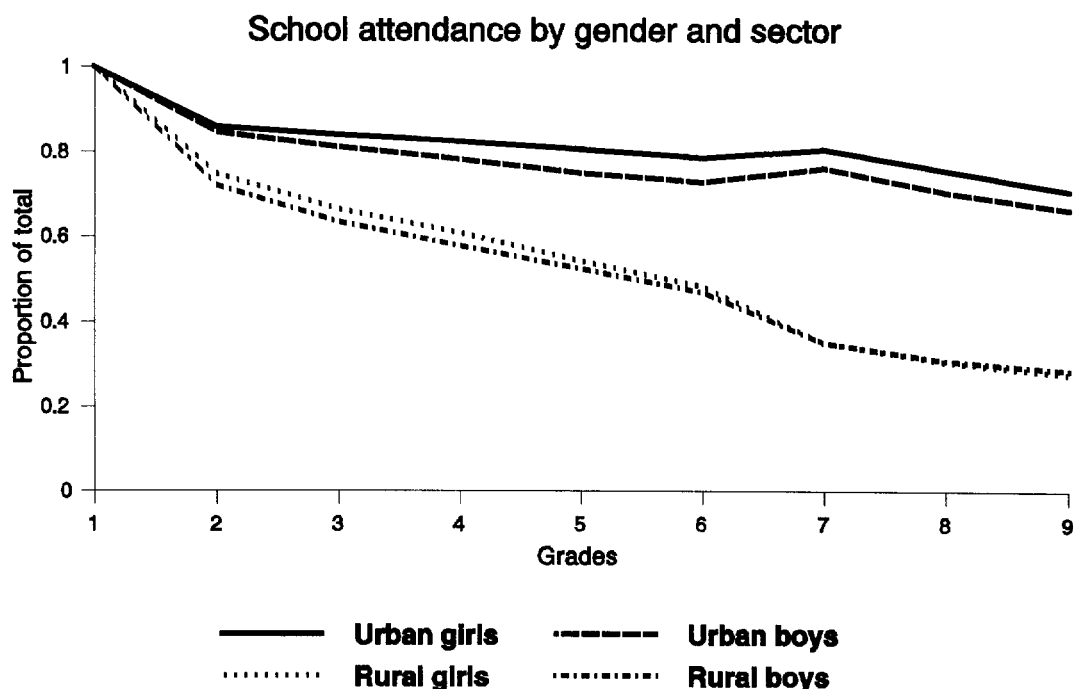
Table IV-4. Absorption Rate

Education Cycles	RURAL FEMALES	RURAL MALES	URBAN FEMALES	URBAN MALES
1 to 3	159%	166%	84%	85%
4 to 6	87%	88%	72%	69%
7 to 9	36%	38%	64%	62%

- 4.15 The analyses of student attendance are encouraging, since the girls who do enter the education system are shown to perform well, progressing through the system with lower repetition rates than boys.
- 4.16 A study based on groups of children who completed the basic level found that by the ninth grade relatively strong gender prejudices had developed. Girls stated that education opportunities should be reserved for boys since they were the ones who would have to provide incomes for their future households. The girls saw marriage as their future and did not therefore feel they needed higher levels of education. 9/
- 4.17 The program is expected to motivate youngsters to attend school. The distance materials (audiovisuals and Internet) will also give students greater exposure to different cultural paradigms, which may help to lessen some of the gender stereotypes rooted in Salvadorian children. The Basic Education Modernization Program is also moving ahead with identifying stereotypes in the textbooks and curriculum and taking action to correct them. 10/

9/ World Bank, Social Assessment, Report No. 16991-ES, 1997.

10/ World Bank and IDB, "El Salvador - Moving to a Gender Approach in El Salvador: Issues and Recommendations," 1994.



C. Risks

- 4.18 *Introduction of Technology.* One risk is that the CRAs' investment in equipment will not have a positive impact on learning sufficient to generate savings in the system through greater internal efficiency. To mitigate this risk, the pilot scheme has been designed on the basis of the recommendations derived from international experience. These recommendations include proper training for teachers in the use of the equipment provided, seeing to it that teachers are motivated, and ensuring that there is an outside organization able to provide technical assistance to the school centers. A plan will also be drawn up detailing the actions necessary for introducing technology in the schools.
- 4.19 *Financing.* A second risk is associated with the simultaneous demands from the different projects, as regards availability of local counterpart funding and the higher recurrent costs. A study on the financial impact of the project concludes that the financial requirements under all of the loan commitments are realistic if the GOES maintains its budget goals for the sector.

Logical Framework
El Salvador
Support Program for Education Technologies (ES-0108)

Summary of Objectives	Verifiable Indicators	Means of Verification	Assumptions
Improve the quality and expand basic education by means of technologies.	Improvement in learning and the internal efficiency of basic education.	Evidence of performance and MINED statistics.	The government continues giving spending on education.
<p>Access to the obligatory third basic education in rural areas by distance education;</p> <p>Improve the children's performance in first and third grade in mathematics and Spanish through the use of Interactive Radio;</p> <p>Improve the performance by developing teaching practices based on the use of technology to education;</p> <p>Strengthening community organization.</p>	<p>(i) Distance education is about 20% more cost-effective compared with regular education;</p> <p>(ii) Spanish learning for the first cycle and third grade mathematics show an improvement of 15% relative to the baseline;</p> <p>(iii) The introduction of the CRAs induces new teaching and learning practices leading to significant improvements in student performance compared with control groups;</p> <p>(iv) The ACEs and CDEs participate actively in the development of programs for the community and the recruitment and supervision of distance education teachers and CRAs, and also the maintenance of the distance education equipment.</p>	<p>(i) evaluations of learning and costs;</p> <p>(ii) performance tests provide data for impact evaluation.</p> <p>(iii) evaluations of the use of technology, its integration into the curriculum, and its impact on learning;</p> <p>(iv) evaluation of the program.</p>	The introduction of technology and distance education are successful.
<p>Components</p> <p>Geographic Coverage: Distance Learning</p> <p>Construction of classrooms.</p> <p>Adaptation of Mexican educational materials.</p> <p>Video sets available.</p>	<p>Indicators verifiable upon project completion</p> <p>1.1 425 classrooms built.</p> <p>1.2 Video libraries aligned on the curriculum.</p> <p>1.3 Video sets recorded and distributed.</p>	<p>I. MINED statistics and annual reviews of the execution targets.</p>	The adaptation of the audiovisual materials ensures the relevance of the materials to Salvadorian conditions.

Logical Framework
El Salvador
Support Program for Education Technologies (ES-0108)

Summary of Objectives	Verifiable Indicators	Means of Verification	Assumptions
<p>equipped with TV and VHS.</p> <p>trained.</p> <p>recruited under the EDUCO</p> <p>ed in use of maintenance funds.</p>	<p>1.4 425 schools equipped.</p> <p>1.5 1,400 teachers trained.</p> <p>1.6 Transfers to the ACEs for paying teachers.</p> <p>1.7 425 ACEs trained in use of maintenance funds.</p>		
<p>Content in Quality</p> <p><u>Radio</u></p> <p>the radio programs for 3rd mathematics and 1st cycle</p> <p>manuals printed.</p> <p>n of recording equipment and s.</p> <p>training.</p>	<p>2.1.1 500 programs produced.</p> <p>2.1.2 9,500 manuals printed and distributed.</p> <p>2.1.3 Recording equipment and cassettes distributed in the schools.</p> <p>2.1.4 24,000 teachers trained.</p>	<p>II. MINED statistics and annual reviews of the execution targets.</p>	
<p><u>Use of Technology</u></p> <p>tion of a Plan of action for ing technology.</p> <p>of education agents.</p> <p>on of the software into the m.</p> <p>ent of the CRAs.</p> <p>ecture for CRAs.</p>	<p>2.2.1 Plan of Action prepared.</p> <p>2.2.2 ACEs and CDEs trained in use of maintenance funds and in the cost of reequipping the CRAs.</p> <p>2.2.3 Selection of software connected with specific subjects by education level.</p> <p>2.2.4 400 CRAs equipped.</p> <p>2.2.5 400 schools with CRAs built.</p>	<p>Plan of Action prepared by MINED in coordination with IDB.</p> <p>MINED Statistics and annual reviews of execution targets.</p>	

Logical Framework
El Salvador
Support Program for Education Technologies (ES-0108)

Summary of Objectives	Verifiable Indicators	Means of Verification	Assumptions
<u>Education Projects Fund</u> Es prepare proposed education programs.	Evaluation of the experiments carried out by the ACEs and CDEs.	Evaluation report.	The communities demonstrate suffi interest to warrant development of programs.
<u>Primary Teaching Materials</u> Schools offering grades 7 through laboratories and pedagogic	1,620 lab. kits distributed. 400 sets of library books distributed to the CRAs.	MINED statistics and annual reviews of the execution targets.	
Technical Strengthening monitoring and dissemination. the cost-effectiveness of the ing model. the impact of the introduction of learning. program.	Evaluation made. Evaluation made.	Terms of reference agreed on and consultants hired.	

**PROCUREMENT PLAN
EL SALVADOR
SUPPORT PROGRAM FOR EDUCATION TECHNOLOGIES (ES-0108)**

Main Items	Financing	Procurement method (1000s)	Prequalifica- tions	Date set for SPN
1. Execution of the program				
<u>Technical assistance — US\$11 million</u> Teacher training Trng. CRA administrators Trng. ACEs, CDEs, CEDEs Curriculum development Teacher manuals Evaln. and monitoring	98% IDB 2% GOES	ICB over US\$200 LCB from US\$100 to US\$199 LB from US\$75 to US\$100 DC less than US\$75	No	From II/98 to I/02
<u>Teaching aid — US\$11.9 million</u> Teaching aids Educational software	100% IDB	ICB over US\$250 LCB from US\$150 to US\$249 LB below US\$150	No	From II/98 to I/02
<u>Equipment and Furniture — US\$15.7 million</u> School furniture Equipt. (video, recorders, TVs, cassettes, computer, printers) Science laboratories	85% IDB 15 GOES	ICB over US\$250 LPN from US\$150 to US\$249 LB below US\$150	No	From II/98 to I/02
<u>Infrastructure — US\$14.2 million</u> CRAs Civil works for classroom adaptation and/or expansion Distance Learning — Construction of classroom in EDUCO schools	100% IDB	ICB over US\$1,000 LCB from US\$250 to US\$999 LB from US\$100 to US\$250 DC less than US\$100	Yes	From II/98 to I/02
2. Administration of the program				
<u>Short and long-term consultancies — US\$2.8 million</u> Logistic support to the program Courses and seminars for MINED personnel	100% IDB	ICB over US\$200 LCB from US\$100 to US\$199 LB from US\$75 to US\$100 DC less than US\$75	No	N/A

ICB — International Competitive Bidding
LCB — Local Competitive Bidding
LB — Local Bidding
DC — Direct Contracting
SPN — Special Procurement Notice
II/98 — Second half of 1998
I/02 — First half of 2002

RGII-ES100P
ES-0108
Original: Spanish

PROPOSED RESOLUTION

EL SALVADOR. LOAN ____/OC-ES TO THE REPUBLICA DE EL SALVADOR
(Technology Mediated Education Program)

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 technology mediated education program. Such financing will be for the amount of up to US\$73,200,000, from the resources of the Single Currency Facility of the Ordinary Capital of the Bank, and will be subject to the "Special Contractual Conditions" and the "Terms and Financial Conditions" of the Executive Summary of the Loan Proposal.