

PUBLIC

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**REGIONAL**

**TECHNOLOGY AND DISTANCE EDUCATION IN LATIN AMERICA AND THE  
CARIBBEAN**

**TC0112103**

**PLAN OF OPERATIONS**

**OCTOBER 2002**

## CONTENT

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>I. FRAME OF REFERENCE .....</b>	<b>1</b>
A. Background.....	1
B. The Bank's strategy .....	4
<b>II. THE PROGRAM .....</b>	<b>4</b>
A. Objectives.....	4
B. Description of activities.....	4
1. Coordination, technical support and training (\$250,000)	4
2. Production of prototype distance teaching training modules (\$250,000)	6
C. Cost and financing.....	7
<b>III. PROGRAM EXECUTION .....</b>	<b>8</b>
A. The executing agency .....	8
B. Program execution and administration.....	9
1. Component I	9
2. Component II	9
C. Procurement of goods and services .....	10
D. Execution and disbursement schedule.....	10
E. Monitoring and evaluation .....	11
<b>IV. VIABILITY AND RISKS .....</b>	<b>11</b>
A. Social and environmental impact .....	11
B. Benefits and beneficiaries.....	12
C. Risks .....	12

## **ANNEXES**

### **ANNEX I          Logical Framework**

#### **INFORMATION AVAILABLE IN THE FILES OF SDS/EDU**

1. Terms of Reference for International Coordinators and Quality Assurance Experts
2. Terms of Reference for the Evaluation of the Program
3. IVEN Program Evaluation.
4. Background information about ILCE. See Web site: <http://www.ilce.edu.mx>

#### **ABBREVIATIONS**

ILCE	Instituto Latinoamericano para la Comunicación Educativa
ISP	Internet Service Provider
IVEN	International Virtual Education Network
TC	Technical Cooperation
UNESCO	United Nations Educational, Scientific and Cultural Organization

# TECHNOLOGY AND DISTANCE EDUCATION IN LATIN AMERICA AND THE CARIBBEAN

(TC-01-12-10-3-RG)

## EXECUTIVE SUMMARY

<b>Requester:</b>	Bank Initiative		
<b>Executing agency:</b>	Component I: Inter-American Development Bank		
	Component II: Secretaría de Educación, Mexico		
<b>Amount and source:</b>	IDB: FSO (net income)	US\$	500,000
	Counterpart (Ministry of Education, Mexico)	US\$	250,000
		US\$	750,000
	Total:		
<b>Terms:</b>	Execution Period:	18	months
	Disbursement Period:	24	months
<b>Objectives:</b>	The objective of the proposed technical cooperation is to improve the quality of secondary education through: (a) Strengthening the capacity of the Inter-American Teacher Training Program and the IVEN project to deliver high quality, content-based science and mathematics materials through quality assurance, inter-country coordination and training. And b) supporting the production phase of the IVEN project and bringing the Inter-American Teacher Training Program through the prototype production phase.		
<b>Description:</b>	In order to attain its objectives, the project will advance two components: (I) Coordination and technical support, (II) Production of prototype distance teaching training modules.  <i>Coordination, technical support and training:</i> The first component provides international coordination, expertise, quality assurance, and technical support to regional initiatives of the IDB in distance learning and the use of technology in education. In particular, the component will include the following activities: a) international coordination for the Inter-American Teacher Training Program; b) international consulting, technical support and independent quality control activities needed to support ILCE in the execution of component II; c) international coordination, technical support and independent quality control for the production phase of the IVEN project; and d) identification of strategies for the diversification of		

funding sources for both programs.

*Production of prototype distance teaching training modules* : This component will start-up the production of the pilot phase of the Inter-American Teacher Distance Training initiative. It will be entirely dedicated to the preparation of a small number of prototype teacher training modules in science, math and language. These multi media modules will include the intensive use of video, communication and information technologies. The executing agency for this component will be the Ministry of Education in Mexico.

**Environmental/  
social review:**

The CESI considered the project in its meeting of June 27, 2002. It recommended that the initiatives supported by this project make a special effort to counteract the gender bias in science education that has been identified in the school systems of the region. The project will explicitly promote female role models in science education by including female master teachers and students in science training videos and by making sure no gender bias is incorporated into electronic or printed material funded by this TC.

**Benefits and  
beneficiaries:**

Direct beneficiaries are all Spanish-speaking teachers of science and language teaching in the 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> grade in schools of the borrowing countries. Indirect beneficiaries include all their students. Groups expected to receive most of the benefit include rural teachers and teachers in areas of difficult access and their students, and teachers in Central American countries and Mexico.

**Risks:**

The project only contains funding sufficient for the development of prototype training modules in the case of the Inter-American Teacher Training Program. A full deployment of the training courses requires additional funding. The project, in its first component, includes resources to be dedicated to design and pursue a fund raising strategy aimed at tackling this issue.

**Bank's strategy:**

The IDB strategy document for primary and secondary education highlights large- scale applications of distance education as a success story in Latin America. Improving teacher training and introducing technology in the education process are also discussed in the strategy as preferred avenues to increase education quality in borrowing countries.

**Special  
contractual  
conditions:**

Prior first disbursement related to component II, the Secretaría de Educación will present, to the satisfaction of the Bank, a signed agreement with ILCE, detailing the latter's responsibilities and functions for Component II execution.

**Exceptions to  
Bank policy:**

N/A

## I. FRAME OF REFERENCE

### A. Background

- 1.1 Technology increasingly is seen as means of improving the quality and reach of education. Evidence has shown that technology enhanced distance education can cost-effectively provide quality education and training to populations which otherwise would receive weak quality education or none at all. There are two areas in which technology enhanced distance education has been shown to make a considerable difference: in science and mathematics teaching and in the training of teachers.
- 1.2 Science and math teaching. The implications for Latin America and the Caribbean are noteworthy. As results of the Third International Mathematics and Science Study of the IEA, in which both Colombia and Chile scored at the bottom, just above South Africa, clearly illustrate, the region lags behind in teaching and learning of science and mathematics. A large part of the problem can be attributed to problems in the quality.
- 1.3 Teacher training. Across the region, there is a lack of qualified teachers with good subject knowledge and adequate and appropriate teaching methods. To these critical deficiencies in qualifications, severe economic and geographical barriers that make it impossible to reach all teachers within a reasonable timeframe can be added. Even though countries invest considerable resources in teacher training programs, their effectiveness has been questioned and the possibility of producing quality content for a program that could take advantage of the recent advances in information and communication technologies, in many cases, has been remote. The challenges in terms of the number and accessibility of teachers in need of quality training are growing as secondary education, in particular, keeps expanding its coverage in all the countries in the region.
- 1.4 The IDB long has supported distance education throughout the region and has collaborated with other donors in promoting these methods. The Bank's approach has been based on the premise that it is fundamental not to start with the technology but rather with educational objectives and problems, and then to seek the most cost effective integrated teaching/learning system, incorporating a variety of technologies, including the most advanced, to solve those problems. Along these lines, the IDB financing has included support for educational television in Mexico, and for computers and Internet connections in countries as diverse as Argentina, Costa Rica, and Barbados. Most all education projects currently under execution or preparation include technology components.

### Summit Commitments

- 1.5 Beginning in 1999 and as part of the follow up to the Santiago Summit of the Americas in 1998, the IDB has supported the technical cooperation project

“International Virtual Education Network” (IVEN). This cooperative effort, originally between five countries - Argentina, Brazil, Colombia, Peru and Venezuela, seeks to develop multi-media teaching/learning materials for the teaching of mathematics and science in upper secondary education. Three countries remain: Brazil, Peru and Venezuela (Argentina left the project due to the country’s political turmoil; Colombia left due to philosophical differences in approach).

- 1.6 IVEN receives financing through a technical cooperation grant as well as components of recently negotiated loans. The start-up phase of the project has ended and the participating countries are now beginning production, although technical cooperation funds are coming to an end. Participating countries, gathered for a meeting of IVEN Steering Committee in Brasilia in February 2002, made a vigorous appeal for the IDB to stay involved with the project for at least one more year, while the module production phase is underway. The project is already bearing fruit in terms of pedagogical frameworks and prototype modules.
- 1.7 More recently, beginning at the 2001 Summit of the Americas in Québec, the IDB initiated a series of consultations in the area of distance in-service teacher training. This new initiative was welcomed by Summit participants and in follow-up discussions. Mexico responded with a concrete proposal, promising to make its educational satellite and technical expertise in this area available to other countries. In an effort to involve others countries, preliminary discussions were held last year with four ministers of education in the region, and exploratory missions and meetings have been held with authorities from Argentina, Colombia, Costa Rica, Mexico, and Chile.
- 1.8 Based on these discussions, an outline of a regional effort in distance in-service teacher training at training secondary school teachers in science, mathematics and language – the Inter-American Teacher Training Program - began to take shape. Under the leadership of the Secretary of Education of Mexico, ILCE (Instituto Latinoamericano para la Comunicación Educativa), an international institution specialized in distance education through electronic media based in Mexico City, became directly engaged as a counterpart to the Education Unit of the IDB. ILCE has been working in collaboration with the Bank in the preparation of a prototype instructional module for teacher instruction in science, a first step in fine tuning the design of the program at a larger scale.

### **Regional Public Goods**

- 1.9 IVEN and Inter-American Teacher Training Program are complementary, supporting teaching-learning process in science and math with quality-based inputs. They also share an underlying assumption: regional public goods. That is, they are based on the assumption that all borrowing countries could benefit from top-quality distance training programs but, individually, are unable to generate them in adequate quantity and quality. This is particularly the situation faced by the smaller and poorer countries of the region.

- 1.9 This operation directly supports the creation of regional goods in the region and, in doing so, provides mechanisms through which commitments made at the Summits in Santiago and Quebec can be made operational.
- 1.10 The Bank is well placed to give direction to this proposed operation. First and foremost, through its convening power and regional presence, the regional scope of the project will be maintained. The use of technology and distance education to improve the quality of teacher training and the classroom materials used by students has been pursued proactively by governments, academic institutions and commercial firms the world over. These are areas with significant potential, given the high demand that can be anticipated if a product of good quality with a feasible implementation strategy can be designed. To this day, however, there are no universally recognized models to implement successful distance education for teachers or students with the use of technology.
- 1.11 The operations supported by this TC aim at developing products in such a way that they will be based on a regional consensus regarding the types of technologies and technology-based approaches that are most appropriate for meeting the needs and overcoming the constraints that are characteristic of the region. This TC will build on general principles that reflect lessons learned in years of distance education and teacher training programs within and outside the region. The most important of these include: i) Emphasis on high quality content and integration between content and didactics. ii) Integrated and flexible packages that combine multiple media as well as distance education and conventional education delivery. iii) Teamwork and group learning among teachers and students participating in the program. And, for the teacher training program in particular: iv) Establishment of very close connections to the real world of classroom teaching. v) Incentives built into the program's design for the teachers to join and complete the program, through formal recognition and certification mechanisms integrated to the teacher's career. State of the art models in the use of technology for teacher training emphasize the use of video and collaborative learning in order to make sure that teachers gain exposure to master teachers working in realistic classroom situations. The relative scarcity of such "model teaching" in the region makes all the more necessary joint efforts to identify and disseminate the practical skills of exceptionally good teachers.
- 1.12 Second, coordination and direction from an institution such as the Bank can serve to mitigate the effects of economic volatility and political changes. Indeed, as a recently completed evaluation of the IVEN project finds, making sure that the participating countries advance abreast in the implementation of a joint project can be extremely time consuming and efforts in this regard can be disrupted by changes in personnel as well as unforeseen political and economic shocks. International coordination, such as the provided by the Bank during the start-up phase of IVEN, holds together and sustains cross-country collaborations, providing continuity in times of political uncertainty or economic downturns.



- 1.13 Third, insofar as quality remains the critical concern of the operation proposed here, the Bank's participation will help ensure independent review of all modules and materials produced. Content development for educational uses of technology, including distance education, lags far behind investments in equipment and connectivity. This TC would create the initial push to correct such an under supply of contents for distance teacher training, as well as provide for the final stage in a similar commitment of the IDB for the supply of content for the teaching of science and math through the use of digital media, in the IVEN project.

**B. The Bank's strategy**

- 1.14 The IDB strategy document for primary and secondary education highlights large-scale applications of distance education as a success story in Latin America. Improving teacher training and introducing technology in the education process are also discussed in the strategy as preferred avenues to increase education quality in borrowing countries.

## **II. THE PROGRAM**

**A. Objectives**

- 2.1 The objective of the proposed technical cooperation is to improve the quality of secondary education through: (a) Strengthening the capacity of the Inter-American Teacher Training Program and the IVEN project to deliver high quality, content-based science and mathematics materials through quality assurance, inter-country coordination and training. And b) supporting the production phase of the IVEN project and bringing the Inter-American Teacher Training Program through the prototype production phase.

**B. Description of activities**

- 2.2 The project comprises the following two components:

**1. Coordination, technical support and training (\$250,000)**

- 2.3 The first component provides international coordination, technical support and assistance, quality assurance, and training to regional initiatives of the IDB in distance learning and the use of technology in education. In particular, the component will include the following activities: a) International coordination for the Inter-American Teacher Training Program. b) Technical support and quality control activities needed to support the execution of component II. c) International coordination, technical support and independent quality control for the production phase of the IVEN project. And d) identification of strategies for the diversification of funding sources for both programs.

- 2.4 International coordination is a critical component of both the Inter-American Teacher Training Program and the IVEN project. International coordination has been and will remain, in the case of IVEN, and will be, in the case of the Inter-American Teacher Training Program, key for ensuring that the products produced will indeed evolve into regional public goods. Reaching and maintaining a regional consensus regarding content and implementation is vital, as is providing ample opportunity for input into all phases of design and production from interested governments and experts. No single country can count on housing the know-how required to develop and produce either the Inter-American Teacher Training Program or IVEN. A wide array of nationalities and experts from different disciplines thus will have to be consulted and invited to contribute. As design moves into production and production into piloting and to-scale implementation, timely feedback will be necessary, as will concerted efforts at outreach. Sustainability will require that all countries in the region be kept abreast of and engaged in activities supported by the operation. Indeed, experience gained to date from (particularly) the IVEN project, clearly indicates that international coordination is the “glue” that holds together and sustains cross-country collaborations. This thus is one of the most constructive roles the IDB can play in an operation such as this.
- 2.5 The international coordination, technical support and assistance, and quality control activities foreseen for this project will function as “wrap around” components. Many of the resources to be put in place – including consultants in the area of content, technology in education, and web-based education in science and mathematics – will be used to support both the Inter-American Teacher Training Program as well as IVEN. This type of wrap-around support will allow the operation to achieve economies of scale in its quality control and technical assistance and support activities as well as to build synergies in the support to ongoing and future Bank initiatives in the use distance education and technology.
- 2.6 International coordination activities will be provided on an ongoing basis. Technical support and quality control will be provided on a per-need basis, with international experts being contracted to perform specific tasks. In an effort to build capacity in the region, issues and problems addressed through technical assistance and in quality control will be gathered and organized and used as to dimension training activities for participating governments and organizations. Terms of reference for consultants supporting the international coordination and quality assurance are available in SDS/EDU’s technical files.
- 2.7 This operation will support the preparation and piloting of prototype modules for the Inter-American Teacher Training Program and the production phase of IVEN. A full implementation of the former and a more region-wide implementation of the latter will require additional funding. For the Inter-American Teacher Training Program, in particular, additional financing will allow for the development of complete training courses and the corresponding e-learning support infrastructure, all of which is necessary for its implementation. Funding for these stages is seen at present as not relying exclusively on additional IDB funding. For this reason,

resources in component (I) of the operation will be channeled towards fund raising strategies and activities aimed at attracting donors that can complement IDB contributions. As with the technical support and quality control activities, these funding raising activities are likely to generate a considerable degree of synergy between both the Inter-American Teacher Training Program and IVEN.

## **2. Production of prototype distance teaching training modules (\$250,000)**

- 2.8 This component will support the production of the pilot phase of the Inter-American Teacher Training initiative. It will be entirely dedicated to the preparation of a small number of prototype teacher training modules in science, math and language. These multimedia modules will include the intensive use of video, communication and information technologies.
- 2.9 The teaching modules to be prepared will strengthen secondary teachers' knowledge and pedagogy in mathematics, science and language. Although the modules will be designed primarily for in-service training, applications for pre-service training can also be envisioned. International and national consultants will support all phases of design and production of the teaching modules, including the content to be included. This will be done in collaboration with ILCE. Depending on the pedagogical objectives, the modules will adapt existing materials and then combine them with newly prepared materials. The Mexican government's library of multimedia materials will be made available for purposes of module development.
- 2.10 An estimate of 20 prototype modules will be produced within the scope of this operation. At least one will be produced for each of the lower secondary grades (7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup>) in mathematics, biology, physics, chemistry and Spanish language. The remainder will be concentrated in one area, with the purpose of completing a prototype training program (for one subject and one particular grade) to be pilot tested.
- 2.11 Each module will contain: i) Two model classes on a particular subject area included in the regular curriculum of all countries in the region (for example, photosynthesis); these classes will be filmed in a real classroom setting using carefully selected master teachers from diverse nationalities. ii) A technical background class filmed in a real setting in which teachers sit as students and discuss the material presented in such a way that they are better able to master the content, implications and nuances of the subject at hand. iii) Digital media (web- or CD-ROM-based), that provides background reading material, sample lesson plans and classroom activities for teachers undergoing training. And iv) Printed materials supporting and related to the other three components.
- 2.12 Within the scope of this operation, all materials produced under this component will be developed in Spanish. The Central American countries and Mexico have already expressed interest in the program, and the extensive needs of teacher training in the rural areas of these countries makes the program particularly

relevant in such context. Plans for an adaptation to Brazil, the Anglophone Caribbean and Haiti are being contemplated from the start, yet their implementation remains contingent on additional funding for this program.

- 2.13 Insofar as the activities provided for under this component will lead to a prototype only of the Inter-American Teacher Training Program, much emphasis will be placed on the evaluation and pilot testing of the modules produced. Supported by the "wrap around" services provided through the first component (international coordination, technical support and assistance, and quality control), the design of each module will be independently reviewed by a carefully selected experts for content, pedagogy, and technology. Once the comments and recommendations emerging from this process are addressed, a preliminary version of a given module will be produced. It will be piloted to a diverse but small group of teachers (e.g., in five schools in México and at least one more country in South America to be chosen having in mind the need to test the resilience of the modules in cultural contexts other than the one in which they were produced) and education specialists (e.g., two from two countries) who will be asked to review and critically comment on the relevance of the content and pedagogy presented, the effectiveness of the presentation, and the "user-friendliness" of the technology. The purpose of these activities will be to ensure that the module is applicable to a wide array of schools and teaching environments. Based on the input received from this process, the module will be revised again.

**C. Cost and financing**

- 2.14 Total estimated project costs are US\$750,000. The Bank will finance US\$500,000 with resources from the net income of the Fund for Special Operations (FSO) on a non-reimbursable basis. About US\$250,000 would be provided in in-kind support from the Mexican Government, in the form of facilities, its multi-media library, broadcast time, management overhead, and parallel module development.

Consolidated budget

Categories of investment / component	FSO	Counterpart (in-kind)	Total
<u>Component I: Coordination and technical support</u>	<u>250,000</u>		<u>250,000</u>
1. International coordination	100,000		100,000
2. Technical support, assistance and training	50,000		50,000
3. Quality control	50,000		50,000
4. Funding diversification strategies and activities	25,000		25,000
5. Contingencies	25,000		25,000
<u>Component II: Module production</u>	<u>250,000</u>	<u>250,000</u>	<u>500,000</u>
Design, pilot testing, production of prototype teaching modules			
1. International consultants (module design)	70,000		70,000
2. National consultants (teaching module design)	40,000		40,000
3. Production Materials	70,000	80,000	150,000
4. Evaluation and pilot testing of modules	50,000	10,000	60,000
5. Administration / coordination; room / equipment rental, local teachers, and video library		160,000	160,000
6. Contingencies	20,000		20,000
<b>Total</b>	<b>500,000</b>	<b>250,000</b>	<b>750,000</b>

- 2.15 Bank resources will cover consultant services required for the production of the envisioned training materials, their travel related costs, expenses for the evaluation and pilot testing of the teacher training modules, and finance eligible multimedia material. The Secretaría de Educación will provide counterpart funding in the amount of US\$250,000, which will cover the coordinator for component II, administrative support, purchase of multimedia material, and also contribute resources for the evaluation and testing of training materials (room, equipment rental, local teachers), and expenses related to the use the video library.

**III. PROGRAM EXECUTION**

**A. The executing agency**

- 3.1 This project will be executed by the Bank (component I) and the Ministry of Education (component II). As such, and for disbursement purposes, the project will be divided into two sub-operations.
- 3.2 Given that this operation directly responds to commitments made at the Summits of the Americas in Santiago and Quebec and the interest in ensuring that the products it finances evolve towards regional public goods, the Education Unit of SDS (SDS/EDU) would execute Component I.
- 3.3 The Ministry of Education (Secretaría de Educación Pública) will serve as executing agency of Component II. It will delegate responsibilities to ILCE, a

nonprofit international organization that advises the Ministry under an agreement with the government, for the design and preparation of the teacher training modules. Given the strong support that the Inter-American Teacher Training initiative has received from Mexico's Secretary of Education, ILCE already has developed a working relationship with the Bank for the purpose of designing and moving forward with this program.

- 3.4 ILCE was established in 1954 at the General Conference of UNESCO in Montevideo, Uruguay. Its mission is to contribute to the improvement of education in the Region, specially through the production and application of audio-visual teaching material and methods. Today it is not only involved in the production of books and videocassettes, but also embracing the use of modern information technology in education. As such, it is participating in the design of education software, and other inputs required to increase the benefits associated with distance education. ILCE's spectrum of activities also includes the promotion of regional technical cooperation on issues related to education and culture and provides a venue for workshops and seminars in these fields. Even though not all countries from the Region are member countries, ILCE's activities are not limited to its member countries. In this regard, ILCE also has agreements with other bilateral institutions in the field of education, international organizations and Ministries of Education.

**B. Program execution and administration**

**1. Component I**

- 3.5 SDS/EDU would contract international consultants and/or firms in order to ensure that both the Inter-American Teacher Training Program and IVEN are duly coordinated at the international level, and receive timely and state of the art quality assurance, feedback from throughout the region, and the required technical support. In the case of the Inter-American Teacher Training Program, consultants will be contracted to review and evaluate each phase of module production, providing support or technical feedback on the proposed content, pedagogy, and technology.
- 3.6 SDS/EDU would also contract consultants to identify longer term funding strategies for the Bank's activities in the area of distance education and technology.

**2. Component II**

- 3.7 As executing agency for component II, the Ministry of Education will establish and supervise a *Committee* composed of three staff from *ILCE*, headed by a Coordinator. In this regard, the Ministry will formalize ILCE's responsibilities and functions (see also paragraph 3.8) via an agreement. The signing of this agreement is a condition prior first disbursement for this component.

- 3.8 The Committee's main functions will be: (1) the selection and contracting of consultant services required for the design of new multimedia teacher training modules, as well as the review of existing ones. (2) The definition/selection of the subject matter to be addressed in each teacher training module to be prepared. (3) The identification of schools, teachers and specialists to review and pilot test each module, as well as arrangement of all logistical aspects related to the actual evaluation and pilot testing. (5) The purchase of multimedia material required, such as CD-ROMs, video cassettes, etc. This will not include the purchase of basic technical infrastructure needed for the transmission of training materials, TVs, computer or monitors, video-cameras, or Internet Service Providers "ISP" fees. And (6) ensure consultant's access to existing multimedia training modules in Mexico.
- 3.9 Furthermore, the *Ministry* will be responsible for the preparation of progress reports on a semi-annual basis which shall contain at least the following information: (1) number of multimedia modules designed or in a stated development stage, organized by teaching area (e.g., physics, biology, chemistry, etc) and grade level. (2) Consultants contracted. And (3) bottlenecks/problems encountered and proposed solutions. The said reports shall not exceed 5 pages.

**C. Procurement of goods and services**

- 3.10 All goods and services will be procured according to applicable Bank norms, policies and procedures. To this effect, the country office in Mexico will explain these rules to the executing agency of component II, and also make the necessary arrangements regarding the specific procedures to be followed by COF/CME in said process.

**D. Execution and disbursement schedule**

- 3.11 The project *execution* would take place over a period of 18 months, as of the date of approval. *Disbursement period* will be for 24 months, as of the same date.
- 3.12 For disbursement purposes, this project will be divided into two sub-operations: with respect to the resources allocated to component II, with the Ministry of Education as the executing agency, a Revolving Fund up to 20% of said component's total amount will be established (US\$ 50,000).
- 3.13 In making payments from the revolving fund, the executing agency is responsible for adhering to the conditions and procedures established in the contract regarding the procurement of goods and services eligible for financing with project resources.
- 3.14 At the request of the executing agency, the Bank may process requests to replenish the revolving fund. Requests must include, for the Bank's review and approval, supporting documentation, which details and justifies payments made by the executing agency from the revolving fund resources. Thirty days before the project's final *disbursement date*, the executing agency should submit the final

justification for payments made using the revolving fund resources. Any unjustified amounts must be returned to the Bank before the project's final disbursement date.

- 3.15 When reviewing a replenishment request, the Country Office in Mexico (COF/CME) is responsible for the review and approval of support documentation submitted by the executing agency for previous advances. COF/CME should deduct from the requested amount payments made by the executing agency for expenses which are not eligible for financing with Bank funds.
- 3.16 With respect to the first component, the Bank directly will administer said funds, following applicable policies and procedures for the contracting of consultant services. It is SDS/EDU's responsibility to ensure a close coordination with the Ministry of Education and COF/CME, to the extent that the services to be contracted by the Bank directly respond to given needs throughout project execution.

**E. Monitoring and evaluation**

- 3.17 The Bank's country office in Mexico (COF/CME) will conduct monitoring of project implementation as far as the component II is concerned. The Education Unit of the Sustainable Development Department will have the technical responsibility for the monitoring and evaluation of the project as a whole.
- 3.18 This project envisions a mid-term and final evaluation. Principal aspects to be considered at this evaluation are: (1) quality of teaching products developed; (2) ease with which teaching material can be adopted and applied by public schools; (3) incorporation/consideration of local factors; (4) response/feedback from trained teachers; (5) degree of cultural diversity in materials produced, in order to ensure widespread applicability and acceptance of the project in the Spanish-speaking countries in the region. Detailed terms of reference for the evaluation are available in SDS/EDU's technical files.

**IV. VIABILITY AND RISKS**

**A. Social and environmental impact**

- 4.1 There is no potential negative environmental impact from this project. Some modules are expected to treat environmental issues, with positive impact on teachers' understanding of these subjects. In terms of social impact, it is expected that the operation will provide valuable inputs for the improvement of teaching methods in Latin America and the Caribbean.
- 4.2 The CESI considered the project in its meeting of June 27, 2002. It recommended that the initiatives supported by this project make a special effort to counteract the gender bias in science education that has been identified in the school systems of



the region. The project will explicitly promote female role models in science education by including female master teachers and students in science training videos and by making sure no gender bias is incorporated into electronic or printed material funded by this TC.

**B. Benefits and beneficiaries**

- 4.3 Over the long term the project would lead to the improvement of the quality of education in the region. More specifically the project would improve teachers' and eventually students' knowledge and understanding of science, mathematics and language, beginning at the secondary level, through changing what happens in the classroom. By identifying, adapting and/or providing high quality educational materials, the project would enable Latin American countries to more effectively utilize information technology, including computers and connectivity, for the improvement of the quality of education. It would also lead to more effective utilization of loan proceeds for educational projects, most of which include purchase of information technology for use in schools. The project would also make a substantial contribution to the development of common standards about teaching and learning among countries of the region. Smaller and poorer countries would particularly benefit, since they lack the qualified human resources as well as the economies of scale for the development of high quality educational materials and distance teaching training modules. Prevalence of underserved rural schools in these countries offers the potential for a substantially favorable equity impact.
- 4.4 Both the Inter-American Teacher Training Project and IVEN deal with science education. Girls are under represented in scientific fields, in part due to the lack of dedicated efforts to encourage them to take science courses and excel in them. The IDB initiatives supported by this TC will start from this consideration in choosing female master teachers in science for the production of videos and by clearly representing female students engaged in class discussions, experiments, simulations and examples used in the materials, aiming at creating role models that help offset the gender bias in sciences described above.

**C. Risks**

- 4.5 Since the long term cost of developing multimedia materials and actually putting them to use in schools is far greater than the amount of this proposed operation, it will be successful in the medium and long term only if it can mobilize increased resources from bilateral and private funding institutions as well as from the countries themselves. Both IVEN and the Inter-American Teacher Training program have already achieved this to some extent, but efforts in this direction have to become more systematic if the projects are to become sustainable in the long run. In addition it will be important to ensure that the materials prepared are of the highest quality and adapted to the actual conditions of education in borrowing countries, thus the key role of the Bank in facilitating the presence of top-level and nationally diverse expertise. The project is focused, in response to

these challenges, on the provision of international know how, quality assurance and funding diversification.

- 4.6 ILCE was the executing agency of the Distance Education Program in Mexico (ME-0052), approved in 1997. This loan did not execute, and was canceled. Despite any complication encountered in the past, ILCE has shown both a commitment to and interest in this present operation. Under the leadership of the Secretary of Education of Mexico, ILCE already has been directly engaged in the project, collaborating with the Bank on the production of some preliminary versions of teacher training modules.
- 4.7 Insofar as this present operation depends on collaboration between governments, it also carries a political risk. Changes in political administration can lead to changes in project staff or overall project status, thus causing delays in module design and production. The "wrap around" activities of component I, administered by the Bank, will mitigate these risks and provide the operation with continuity in those instances where governments and/or staff change.

**Logical Framework**

The program	Indicators	Method of Verification	Assumptions
<b>Goal</b>	Improve the quality of secondary education in Latin America		
<b>Objective</b>	Contribute to the improvement of teacher distance training programs in science, mathematics and language at the secondary level; and provide high quality content based science and mathematics learning materials.	Review / evaluation of teacher training program modules. Review / evaluation of distance education learning materials.	Need for improving / keeping up to date teacher knowledge in science, mathematics and language in LAC.  Distance education training modules and learning materials effectively contribute to the improvement of teaching quality.
<b>Components / Activities</b> <u>Component I:</u> Coordination and technical support           <u>Component II:</u> Production of prototype distance teaching training module	Selection and contracting of individual consultants / firms serving as regional coordinator for the Program.   Distance multi media training modules and materials designed           Production of up to 20 prototype multi media training modules, covering mathematics, biology, physics, chemistry, and Spanish language.   Testing of modules in small heterogeneous groups comprised of teachers and education specialists.	Contracts signed, number of training products and modules prepared.   Additional funding identified and secured.   Objective reviews confirm high quality and relevance of modules   Review of prototype multi media training material.   Report prepared at the end of the pilot test phase.	Regional coordination required to ensure adequacy of training material in different countries.   Program products will be considered regional public goods to be supported by a number of countries and agencies.   Need for specific multi media training material, focusing on teaching content of primary importance.   Training material responds to an identified need, or addresses a given deficiency in teachers' knowledge.   Training material will reach a significant number of teachers in LAC, thus contributing to higher teaching quality.