

NONUNIVERSITY TECHNICAL HIGHER EDUCATION REFORM PROGRAM

(AR-0181)

EXECUTIVE SUMMARY

BORROWER AND
GUARANTOR: The Argentine Republic

EXECUTING AGENCY: Ministry of Culture and Education (MCE)

AMOUNT AND SOURCE: IDB: OC US\$82.5 million
Local counterpart funding: US\$82.5 million
Total: US\$165 million

FINANCIAL
TERMS AND
CONDITIONS: Amortization period: 20 years
Grace period: 5½ years
Disbursement period: 5 years
Interest rate: variable
Inspection and supervision: 1%
Credit fee: 0.75%
Currency: US\$

OBJECTIVES: The general objective of the program is to increase the availability, quality and pertinence of skilled manpower through the institutional development of nonuniversity technical higher education. To achieve this objective associative projects bringing together the private sector, technical education institutions and/or universities, and provincial and/or municipal governments will be promoted that meet the labor market's requirements and generate high-quality alternatives to university education and new management models. These projects will have to mobilize other resources in addition to those obtainable from public sources, raise the efficiency of education in terms of unit costs and student learning performance, and improve the articulation of the tertiary institutions with the other levels of education.

DESCRIPTION: To accomplish the above objectives financing would be provided for the establishment of: (1) An accreditation and evaluation system for institutions and programs and; (2) a National Fund for Financing Institutes of Technology (FONIT), which are described below:

1. Accreditation and evaluation system for institutions and programs (US\$9 million)

The intention is to create and adopt an accreditation and evaluation system for institutions and programs in order to rank the institutions and programs at the provincial level on the basis of the quality of the courses offered and to publish the findings. The accreditation of the institutions benefited by the program will be for five years, while the evaluation process will be continuous, with the results being measured at different points and at the completion of the execution of the program.

2. National Fund for Financing Institutes of Technology (FONIT) (US\$148.2 million)

FONIT's purpose is to finance projects of institutes of technology that are innovative in terms of their management and curricula, with the objective of improving the quality and efficiency of nonuniversity higher education and its relevance to the labor market. Through the fund, the following is expected to be accomplished for an enrollment of approximately 15,000 students (11% of the total enrollment of the technical and vocational institutes): (i) achieve retention rates of at least 66% in the first cohort, with progressive increases in these rates to 75% by the year 2002; (ii) increase of the employment rate from 40% in 1996 to 75% in 2002; and (iii) benefit of 5,000 workers requiring retraining.

The aim is for between 50 and 60 projects to be financed through the fund in order to create 125 new programs related to the employment areas in highest demand, in accordance with the following tentative distribution: 15 in basic industrial technology (25%), 35 in services (60%) and 10 in health (15%), with an average enrollment estimated at 300 students in each. The FONIT resources will be used to finance, on a nonreimbursable basis, 60% of the cost of a project and the remaining 40% would be contributed by the beneficiary institutions.

Projects submitted to the fund will have to contain an institutional development proposal and an academic development proposal. The former will be required to include, as a minimum, the following: (i) institutional mission, objectives and goals with the aim of incorporating new operating models, mobilizing private resources, incorporating efficiency criteria and creating a demonstration effect for the sector as a whole; (ii) the academic

proposal must contain clearcut profiles that will result in the establishment of courses tailored to the labor market whose graduates are of superior quality and equipped to enter the working world; and (iii) both proposals must also include a detailed description of activities and of the responsible authorities and their sources of financing, costs and investment schedule and should be prepared to provide training and extension facilities for the productive sector.

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

The Bank's strategy in Argentina focuses on three basic areas: (i) reducing poverty and raising the quality of life through provision of employment and increasing the coverage of services; (ii) raising the productivity and competitiveness of the tradable goods sectors; and (iii) moving ahead with reform of the State and decentralization of services to provinces and municipalities. The characteristics of this project are consistent with said strategy, especially as regards making tradable goods sectors more productive and competitive.

**ENVIRONMENTAL
CLASSIFICATION:**

The Environment Committee, at its meeting of March 28, 1995, classified this as a Category II operation since its implementation will not generate impacts harmful to the environment.

BENEFITS:

The benefits of the program are fundamentally of two types: (i) at the level of individuals and of society as a whole, the program will improve the productivity and employability of labor as a result of better technical training for work; and (ii) the program will have systemic impacts in terms of improving the internal efficiency of technical education, which will in turn improve the sector's cost-effectiveness parameters, such as cost per graduate.

RISKS:

The first risk relates to the legal framework of the reforms. A Higher Education Law was approved recently and contains a special chapter devoted to nonuniversity higher education, which underscores the State's support for special projects. Although this law has yet to be subjected to an implementation analysis by the Secretariat of University Policies, this risk is not considered critical in the implementation of the proposed program, execution of which will in fact strengthen the intended application of the law.

The second risk is connected with the possibility of erratic selection of projects or of partial financing

thereof. To minimize this risk the operations manual requires: (i) an annual outside audit that will cover the physical and financial aspects; and (ii) a system of follow-up, monitoring and evaluation of progress, which will report constantly on the effectiveness and efficiency of the program's administration, the transparency and objectivity of the project selection procedures, and fairness in the granting of financial support.

**SPECIAL
CONTRACTUAL
CONDITIONS:**

For the executing agency to receive the first disbursement from the financing it will have to submit to the Bank's satisfaction evidence that the following conditions have been met:

- a. Creation of FONIT (see Table III-2 of paragraph 3.13)
- b. Operations manual in effect (paragraph 3.13)
- c. Formal approval of at least three projects and evidence that the parties have negotiated the respective draft agreement (paragraph 3.13).

In addition, it is proposed that a revolving fund be established in an amount of up to 5% of the financing (paragraph 3.17). The contract will also include provisions adequate for ensuring the monitoring and evaluation of the program (paragraph 3.14), submission of audited financial statements (paragraph 3.18), and use of the Bank's procedures in the procurement of goods and the contracting of consulting services (paragraph 3.16).

**TARGETING OF
LOW-INCOME GROUPS
AND SOCIAL
CLASSIFICATION:**

While the program is not directly aimed at reducing poverty, its impact will be decisive for improving the quality and relevance of technical education and therefore the productivity and employability of the beneficiaries, thereby helping them find employment and improving their income level. In this way, the program will contribute significantly toward improving the employment situation of the target population, namely young people who choose technical job training as opposed to those who decide to go on to university (paragraph 4.13).

The distribution by income level of students in the tertiary technical institutes is less regressive than that of the university students, who are typically concentrated in the upper quintiles. Moreover, the Household Survey findings show that unemployment disproportionately affects the first two income quintiles, which are precisely the groups who have been hardest hit by the drop in earned income and the increase in poverty in recent years. It is

accordingly to be expected that technical training of better quality and more directly relevant to the labor market will benefit the lower and middle quintiles more than the upper ones (paragraph 4.14).

In addition, the gains in efficiency in higher education will help to hold down cost increases at this level, so that more resources can be devoted to secondary education, one of the chief sources of inequity and where a large part of the efforts for improving the quality of education and tailoring technical programs to the employment market are currently concentrated (paragraph 4.15).

For the above-mentioned reasons this program will benefit mainly secondary school graduates, who make up a relatively favored group in Argentina, and therefore cannot strictly be classified as targeting low-income segments of the population in accordance with paragraph 2.15 of the Eighth Replenishment document (AB-1704). According to paragraph 2.13 of the same document, the program can be classified in the social equity and poverty reduction category since it involves actions in and reform of the education sector.

**PROCUREMENT OF
GOODS AND
SERVICES:**

International competitive bidding is recommended in the contracting of works for amounts in excess of US\$5 million and in procurement of goods for amounts in excess of US\$350,000. With a view to speeding the execution of the program it is recommended that the Bank's prior approval be obtained for the contracting of services for an amount in excess of US\$50,000 for individual consultants and US\$100,000 for consulting firms. It is recommended that the documents in support of these processes be reviewed by ex post sampling (paragraph 3.16).

**EXCEPTIONS TO
BANK POLICY:**

None.

I. FRAME OF REFERENCE

A. Economic development and labor market

- 1.1 After Argentina emerged from the economic crisis of the latter part of the 1980s and established a more solid basis for sustainable development, the government focused its attention on the large social gaps which, if not met, could hold up economic progress. Present-day society recognizes the crucial role of the education system in providing the human resources needed for economic growth and the ability to compete successfully in global markets. Since Argentina's economy is aiming towards outward-oriented policies as reflected in the country's participation in Mercosur and in other international markets, working on raising the quality of its human resources by giving them a better education and training and equipping them to function in a flexible labor market with a relatively high wage and salary level will enable the country to compete in producing goods and services with high added value.
- 1.2 In the next decade, employment in Argentina is expected to be impacted by two major trends: (i) the expansion by over 2% of the economically active population (13.8 million) because the increase in the working age population is expected to exceed the average population growth while participation by women in the labor force, which rose from 24.5% in 1980 to 33.0% in 1993, will increase further; and (ii) the deepening of the changes in employment as a result of the economic crisis and the restructuring and modernization of the economy. The stresses in the labor market are accordingly expected to remain high. Unemployment is running at around 17% and close to four million persons are underemployed.
- 1.3 There is also a definite trend toward increased employment in small enterprises (50%) and toward self-employment in the informal sector; at the same time, the share of medium-sized and large companies in total employment is significant (15.5% of all employees work for firms employing over 100 persons and 34% are in firms with between six and 100 employees). The manufacturing sectors are employing fewer persons but the services sector is accounting for a steadily growing proportion of employment, with 37.9% of all jobs being in production of goods and 62.1% in services. The situation of the labor force in Argentina is relatively favorable compared with that in other countries of the region. In 1993, 8.6% of the economically active population had completed higher education, 27.1% had graduated from secondary school and 54.9% had completed primary education, while 9.3% had no formal education.
- 1.4 The intensifying competition in the working world means that the level of qualification and mobility of the labor force plays an increasingly important role in determining access to employment, although the relationship between the levels of education of the

active population and unemployment is neither mechanical nor linear. Women, on average, have a higher level of education than men and their rate of participation in education and employment in Argentina compares favorably with other Latin American countries. Women, young people and those without formal education are the hardest hit by unemployment; the household survey shows that as the level of unemployment rises, the difference between the level of employment of the best-educated workers and those with lower levels of education grows. Of the unemployed, 71% are among the population with less than complete secondary education, whereas only 5% of those who have completed higher education are unemployed.

- 1.5 The reasons for this growing demand for better-educated workers are: (i) the labor market is becoming more flexible and competitive; (ii) the participation of the services sector in total employment is growing and this sector requires a higher level of education (services employ 50.5% of those who have obtained a university degree and half of the sector's employees have completed secondary education as compared with 27% in the manufacturing sector); and (iii) the need to increase industrial productivity through technology conversion and human resource training, in order to offset the effects of high labor costs and enable the country to remain competitive. 1/

B. Nonuniversity technical higher education

- 1.6 The nonuniversity technical higher education (NUTHE) sector in Argentina sprang up in recent years, following a process similar to that which took place in the majority of developed countries in response to the problems caused by the explosion of university enrollments and the need to diversify the supply of courses and programs at this level to respond to the changes in demand for labor and the qualifications required due to rapid technological change. The relative participation of nonuniversity enrollment in total higher education increased between 1980 and 1991 from 20% to 34% of the total. The rate of growth of university enrollment between the two Population and Housing Censuses was 87% while in nonuniversity higher education it was 260%, which shows the strength of this sector. Between October 1994 and April 1996 a total of 135 new academic units were created and enrollment increased by over 57,000 students, while university enrollments remained relatively stable.

1/ The cost level in Argentina is the highest in the region, using as a benchmark average wages and salaries in Chile, Uruguay and Brazil, which are lower than those prevailing in Argentina.

1. Legal and institutional framework

- 1.7 **At national level**, the Federal Education Law, passed in 1993, specifies that: *"The nonuniversity vocational qualification shall take place at the teacher-training institutes or the equivalent or in technical training institutes which shall grant vocational degrees and shall be articulated horizontally and vertically with the university"*. The Higher Education Law passed in 1995 sets out the following guidelines for the reform of NUTHE: (i) structure the studies on the basis of a flexible curricular organization that will equip graduates to find employment; (ii) coordinate the related courses and programs; (iii) work toward expanding the degree of freedom of action of the institutions; (iv) establish mechanisms for interinstitutional cooperation; (v) develop arrangements for ongoing institutional evaluation; (vi) through the national government, support nonuniversity higher education programs characterized by the special nature of the courses offered and by their level of excellence; close tie-ins with entities in their service area; the offering of short, flexible and/or set-term courses that contribute to their graduates' securing of employment; and (vii) sector institutions that agree with a university on the mechanisms for accreditation of their programs may be known as "university colleges".
- 1.8 **At jurisdictional level**. At the beginning of the 1990s the administration of tertiary education was transferred to the 24 provincial jurisdictions and to the Municipality of the City of Buenos Aires. This transfer entailed the disappearance of the National Directorates which had overseen nonuniversity higher education. The State and private management services transferred were, generally, incorporated into the MCEs of the jurisdictions. These agencies have not been able to develop a strategic vision for the sector that would serve as a guide in conducting diagnostic studies, studies of labor market demand, scientific and technological updating, harmonization of qualifications, planning and evaluation of plans and programs, studies of student behavior, performance, dropping out and definition of general criteria concerning programs, equivalency assessments and qualifications, among other aspects. This is partly due to the process of transferring the services including the establishments transferred, but without changing their basic staffing. As a result, serious difficulties arise in the operating capacity of the MCEs because they do not have the technical staff needed for providing advisory and technical support, and evaluation and specific supervision for the institutes. The limited resources available are applied tactically and strategically in the teacher-training area, which leaves the management, planning and control functions specific to technical education inadequately provided for.

2. The profile of the existing supply 2/

- 1.9 Argentina has 1,514 nonuniversity higher education units: of these, 894 train teachers, 260 provide technical education and other forms of education and 360 offer exclusively technical training to some 56,000 students. The average size of each unit of this sort is 157 students (without significant differences between the public and private sectors), while half of them have fewer than 80 students. The supply of NUTHE is heavily concentrated in the provinces of Buenos Aires, Córdoba and Santa Fe, and the Federal Capital, which together have 72% of the units and 80% of the students. Eighty percent of the units are in localities with over 50,000 inhabitants; 91% of the private institutes and 65.5% of the public ones. This shows that while the private institutes tend to locate in the larger cities, attracted by the potential demand, the public ones also seek to serve localities where there are no other higher education facilities. Of the 360 establishments with technical education programs, 59% are private and 60% of the students are enrolled in them, while in nonuniversity higher education as a whole the private sector runs 52% of the education units and attracts 45% of the students.

3. NUTHE linkages

- 1.10 NUTHE is distinguished from other forms of education by the type and frequency of its linkages with the productive sector and the universities. According to the sample of 62 establishments studied, 47% assign first place, in terms of importance of the relationships established, to the productive sector. Regarding the type of link by degree of importance, the public establishments put the universities first while the private ones place higher value on their ties with the productive sector. The proportion of establishments maintaining ties with the universities increases as their enrollment does (50% in those with fewer than 200 students and 85% in those with between 200 and 400). Some 18% (11 in all - 9 public and 2 private) of the establishments have ties with public enterprises, while 71% (44 in all - 22 public and 22 private) are linked with private enterprises. It is pertinent to note these establishments' links with public agencies: the majority have ties with municipal agencies (65%) while 48% have ties with provincial agencies and a similar percentage maintain links with national agencies. Almost one third (20 establishments) maintain links with agencies of the three levels at the same time.

2/ Obtained from analysis of a probabilistic sample based on the number of establishments, applied to the provinces of Buenos Aires, Santa Fe, Mendoza and Santiago del Estero, 59 establishments, 1,100 graduates, 43 enterprises with 522 productive establishments and around 59,000 employed persons.

- 1.11 The formalization of the links between NUTHE and other institutions is effected by means of agreements. The purpose of these can vary: a typical agreement is one designed to formalize the internships or training of students in different institutions or organizations; others are based on the provision of technical assistance and the development of courses with a view to upgrading human resources belonging to different agencies, such as municipalities. There are also agreements with public and private universities for purposes of educational integration, provision of scientific and technical advisory services, performance of socioeconomic diagnostic studies of the institutions' service areas and for recognition of degrees.

4. Characteristics of student body

- 1.12 The students pursuing NUTHE are mainly between 18 and 24 years of age, and 63% of them (74% of the men and 54% of the women) are working, compared with 54% of the students in the university sector. Females make up 56.3% of the student body.
- 1.13 The measurements of the educational level of secondary education made by the MCE produce unsatisfactory findings. The distribution breakdown resulting from a sample of over 1,000 students as regards their performance in mathematics is as follows: very low, 19.8%; low, 18.4%; average, 22%; high, 18%; and very high, 21.8%. For language, the figures are: 20.4%, 18%, 22.8%, 17.6% and 21.2%. Almost 40% of the students therefore fall in the low or very low categories. The population of young persons attending private and public establishments is similar.
- 1.14 According to the findings of a recent MCE study, the social stratification of the students in secondary and technical postsecondary education is practically uniform by income level. This distribution is less regressive than that of the university-level students and shows that a high proportion of students come from the poorest strata of society.

5. Programs, curricula and qualifications

- 1.15 The total number of nonuniversity postsecondary technical programs in the country is 364, broken down into 44 areas of specialization. There is a considerable range of programs, the ones offered most frequently being: (i) systems and computers (32% of students); (ii) administration (11%); (iii) communications (10%); (iv) paramedic (10%); (v) industrial technology (9%); (vi) commerce (7%), (vii) tourism (7%); and (viii) design and other programs, on a smaller scale. In the public sector, the students opt for systems (27%), communications (19%); industrial technology (17%) and administration (15%). In the private sector, breakdown is as follows: paramedic (23%); administration (17%), tourism (15%), systems (15%), and commerce (15%). Around 80% of the total enrollment is in the services area, 10% in health and about 10% in industrial technology. The bulk (90%) of the programs lead to

degrees in a three-year period. The total load is 2,250 class hours on average with a weekly load of 25 class hours on average. The average number of students per course is 28. It can be inferred from these data that, as in other countries, NUTHE is characterized by a type of instruction that is closer to secondary than to university-level education.

- 1.16 In all cases a certificate for completion of secondary studies is required for admission to the program and approximately 40% of the institutions include successful completion of remedial courses. Dropout rates among NUTHE students are comparatively lower than among university students, although the longer the program the more likely are students to drop out: in two-year programs the dropout rate is of the order of 55.5%, for three-year courses it is 67% and for four-year courses it reaches 78.7%, which is around the average for university courses.

6. Teaching staff

- 1.17 The technical and vocational NUTHE teaching staff number around 7,000. Although the student-teacher ratio averages eight, which may appear excessively favorable by international standards, it is usual for one and the same teacher to work in more than one institution because of the low pay scales, which inevitably impacts the efficiency of his/her teaching.
- 1.18 The strategies employed for hiring teachers under a more flexible system than at present are: (i) keeping the personnel on a provisional or interim basis; and (ii) in the private sector, submitting new curricula as education experiments. The current regulations already open the possibility of fixed-term contracting outside teaching staff regulations. In the establishments there is agreement on the need for new hiring arrangements for teaching staff that will not place obstacles in the way of introducing the curriculum changes as proposed in this program.
- 1.19 While 41% of the teachers have completed their university studies, a further 26% have completed nonuniversity higher education. No information is available on the teachers' degrees, in terms of establishing the linkage between their areas of study and the respective courses they teach. Neither is it known whether these teachers have previous work experience. Because of the low salaries paid, most teachers hold more than one job which means that they are unable to devote themselves to their students outside of classroom hours or to spend time on training and research. Accordingly, and because there is no specific training plan for NUTHE teachers, training for them is reduced to in-service training in the course of their actual teaching work. The program described here includes provision for teacher training and for the hiring of visiting instructors to strengthen the teaching imparted.

7. Infrastructure and equipment

- 1.20 The infrastructure, equipment and laboratory materials are insufficient and too outdated to provide an adequate learning environment. The survey findings are as follows: (i) it is rare for a single establishment to have exclusive use of the buildings. In more than 80% of cases, the facilities are shared with other levels of the same establishment (for instance, secondary and higher education), or with other establishments; (ii) the area per student is 9.28 m² in the public sector and 5.63 m² in the private sector. The former figure is high in relation to international standards (4 m²) and indicates a low utilization of education facility space. Moreover, there are no expansions or new building projects under way; (iii) upkeep at approximately 45% of the public physical infrastructure and 35% of the private facilities fall within the "average" to "neglected" range, with "average" meaning that investments of between 10% and 40% of their value when new are called for. In addition, 30% of the establishments are operating in leased premises. The average total area covered by an establishment is 2,700 m²; and (iv) the libraries are inadequate and the number of books per student is low. The bulk of the technical equipment in laboratories is obsolete and the teaching materials are insufficient, which affects the quality of learning.

8. Cost and financing

- 1.21 The proportion (4.27%) of expenditure on NUTHE in terms of total provincial spending on education (US\$7.8 million in 1996) is far higher in some of the economically disadvantaged provinces than in other more developed ones. For example, the figures are 21.6% in Corrientes, 9.6% in La Rioja, 8.8% in Catamarca, 8.2% in Santiago del Estero and 6.2% in Chaco, whereas in the more developed areas they are 4.1% in Santa Fe, 3.1% in Buenos Aires province and only 1.4% in Córdoba. This is a eloquent indication of the importance that is now beginning to be assigned to this type of training for the economic and human development of the former group of provinces.

- 1.22 Average public provincial spending per student on NUTHE is US\$1,117 per year; this tends to be much higher the smaller the establishment, which suggests that important economies of scale could be achieved by increasing average establishment size. Table I-1 presents size data for the existing public and private establishments.

Table I-1		
SIZE OF INSTITUTIONS		
Enrollment	Public	Private
(200)	55%	70%
201-500	28%	27%
over 500	17%	3%
Percentages	100%	100%

- 1.23 NUTHE is succeeding in mobilizing significant resources of private origin in the form of: (i) registration fees; (ii) examination fees; and (iii) monthly student fees and sale of services. This is the case because, in the first place, 60% of the establishments are private, and secondly, because the public establishments are able to supplement the budget funds they receive from the provinces with other resources. According to the survey, tuition fees represent 72.5% of the total budget in the private establishments, while 25% is covered by subsidies from the provincial education ministries. In the public establishments, private funding in the form of voluntary contributions, cooperatives, and sale of services make up 15% of the total budget, while the remaining 85% is obtained from the provincial budgets. Although about one half of the exclusively technical-vocational private institutions (42.5%) receive State subsidies, only 17% of them are fully subsidized. There are differences in private expenditure per student between public and private establishments. According to the student survey, private expenditure per student in the public establishments is 30% below the level in the private establishments, based on consideration of total expenditure (on transportation, food, materials and so on), with the average monthly voluntary contribution estimated at US\$22 in the public establishments and monthly average expenditures of US\$101 in the private ones. Despite their links with the productive world, the financing of NUTHE establishments through sales of services and by the enterprises is minimal: on the order of 3% in the official sector and nonexistent in the private sector. The strengthening and consolidation of NUTHE will require more intensive contractual relations with the productive sector.

9. NUTHE and the labor market

- 1.24 Persons with occupations classified as technical represent around 6% of the employed economically active population, but people holding positions of a technical nature are tending to be replaced by better educated and younger personnel, as a result of which this percentage is on the increase. The types of profiles are: (i) technicians in management, administration and sales (TMASs); (ii) special technicians (STs) for industry and health; and (iii) intermediate technicians (ITs). The TMASs are employed in both the industrial sector and services. STs can play a wide role in the supervision of technical processes and of persons and in maintenance positions. The ITs are a mix of the previous profiles, requiring computer skills and the ability to do programming and to support others in general computer work. The STs are more numerous than the TMASs, which may suggest a certain mismatch with the labor market in which tertiary occupations are assuming ever-increasing importance. In this connection it should be noted that the proportion of the active population employed in industry dropped from 19.4% to 17.5% between 1990 and 1995, while the percentage employed in services increased. The education levels of technicians are low, although the TMASs have somewhat higher levels than the STs. The proportion of TMASs with postsecondary

qualifications ranges from 25% to 35% depending on the province, compared with 20% to 33% for STs.

- 1.25 Demand for positions is distributed very uniformly between TMASs and STs. The TMASs work in occupations connected with management, administration and commerce that have many characteristics in common, regardless of the type of enterprise, which favors the development of common curricula. Health technicians, on the other hand, who constitute a large group, require specific curricula. The STs combine skills specific to each branch of industry and certain common skills connected with logistics, maintenance and quality control. In addition, the increasing competitiveness in the labor market is generating positions for STs who are now having to be more versatile, with general basic skills that have to be applied in the specific circumstances of each occupational sector. The demands for technicians with information technology and computer expertise, capacity to work in groups, mastery of communication techniques, self-discipline and self-control, oral and written expression skills, statistics, English, familiarity with the latest technology, applied mathematics and ability to get on well with people, are common for the three types of technicians. The STs are paid about 1,100 pesos a month, 20% more on average than TMASs, despite having lower levels of education. This can be a reflection of today's greater demands in terms of skills needed to manage production systems and local shortages of workers possessing new skills.

10. Employers' view of NUTHE

- 1.26 To ensure the relevance of technicians' training to the technological characteristics of the sector in which they will be working, employers underscore the importance of stop-and-go training courses and of collaboration between training schools and potential employers in setting up curricula. Small and medium-sized enterprises in particular have very little confidence in learning done in an exclusively academic setting or in school workshops and laboratories. Ensuring the success of technicians' training in NUTHE, from the standpoint of their obtaining employment, accordingly not only requires active participation by representatives of the productive sector in the devising of curricula, through the so-called "linkage committees", but also effective participation in the training process through periods of in-plant training (internships). For NUTHE to function effectively there must be permanent liaison between the education sector and the production system. On the basis of the survey conducted, the latter's demands are across-the-board in nature since there do not appear to be, generally speaking, any positions that are specific to a single economic sector or a single size of enterprise. In point of fact, the findings of a follow-up study of the graduates of the Mendoza Province University Institute of Technology make it possible to draw up a tentative description that serves to confirm this characteristic of labor market demand. Of the 144 graduates

of its first cohort (1996), 71% are already employed; 19% are with companies employing more than 50 persons, 7% in the public sector and 74% in enterprises with fewer than 50 employees (SMEs). In terms of economic sectors, 20% are employed in trade, 24% in industry and 50% in services.

- 1.27 In conclusion, it can be stated that there is a general demand for middle-management personnel and that there are definite job niches for graduates of NUTHE short courses. The demand is concentrated in small and medium-sized service and commercial enterprises and in large service and industrial enterprises. Moreover, the need to upgrade the low level of education of technicians already employed, by means of continuous training, requires that these programs and courses be opened to older workers with prior work experience.

C. Rationale of the program

- 1.28 This program would represent an initial attempt to introduce measures and establish mechanisms to deal with the problems that are having an increasingly negative impact on technical higher education in Argentina. Table I-2 sets out the problems and their impacts in summary form, together with the solutions that would be introduced with the implementation of the program.

Table I-2
GENERAL SUMMARY OF THE RATIONALE FOR THE PROGRAM

Present problems	Their impact	Proposed solutions
Fragmentation of supply; small size of education units	High unit costs	Increase average unit size to a level that will make them cost-effective
Weak linkages of supply with the labor market	Graduates have difficulty obtaining employment	Set up institutional models with participation of entrepreneurs as active partners (co-owners) of the units, which will ensure that programs and courses are designed in accordance with employers' needs and that employers also have greater involvement in the new institutions' other activities.
Low-quality teaching staff and rigid hiring rules.	Low-quality graduates	Hire teachers with production experience under flexible labor systems and hire visiting teachers for specific tasks.
Lack of mechanisms for regulating supply of and demand for education services.	Students are confused and poorly informed about their best study and work options	Create an accreditation and evaluation system for institutions and curricula and publish its findings.
Lack of financial incentives for implementing new curricula	Institutional stagnation which prevents diversification and adaptation of existing curricula to the demands of the labor market and improvement of education infrastructure.	Complement the institutions' own efforts with nonreimbursible financing of innovative programs meeting efficiency and effectiveness criteria.
Unclear rules and regulations governing the obligations of the State and provinces for the administration of technical higher education.	Authority vacuum and considerable delays in approving curricula and other user needs.	Create systems and rules that delimit the responsibilities of one and the other and help to speed procedures and guide users.

1.29 NUTHE suffers from excessive fragmentation due to the small size of the education units and the wide variety of programs. This has a negative impact on the establishments' efficiency. Achieving a critical mass of students in each unit is vital for the best cost-effectiveness equation for each institution and effective use of the facilities. The fragmentation of the supply also seriously impairs the visibility of NUTHE in the labor market and for the students, who do not perceive it as a real higher education option. In this context, a policy of rationalization of supply has to be carried out by means of incentives to increase the average size of the public education units, train the teaching staff and ensure flexible conditions for their hiring. In Buenos Aires province a policy of closing, combining and opening programs has been begun, with the result that the number offered has been reduced from 122 to 85.

1.30 In addition, NUTHE has to provide new higher education opportunities for young people graduating from comprehensive secondary education. In this connection, the strengthening and rationalization of NUTHE should enhance the status of the technical branches of comprehensive education, by suggesting to students course selections leading to higher education qualifications. The

provincial governments will accordingly have to be the central agents of NUTHE. An association between the provincial governments and the production sector and possibly, the existing education institutions, will be an appropriate strategy that will make it possible to provide the NUTHE establishments with a suitable institutional model that will ensure both their autonomy and their efficiency.

- 1.31 The composition and level of qualification of the NUTHE teaching staff are inadequate for ensuring a good quality of education. The Argentine higher education institutions, chiefly the universities, have lost a part of their qualified teaching staff and have not been able to replace them. A related phenomenon has occurred in the nonuniversity higher education institutions, in which the teachers' qualifications are very low. The academic model adopted to date is similar to the traditional secondary level; at the organization level, there is no provision for positions to handle academic extension and/or technical teaching functions. The change to be introduced with this program is the hiring of instructors from the productive or services sectors to perform specific teaching functions and to train permanent teaching staff hired under flexible labor arrangements.
- 1.32 The lack of appropriate performance standards and evaluation methods for teachers together with the absence of accreditation and institutional evaluation mechanisms mean that there are few incentives for improving the quality of education. Evaluation systems are few in number and nonsystematic. In some cases, as in the province of Buenos Aires, the evaluation process comes down to internal evaluations by the personnel themselves in periodic meetings. There is virtually no follow-up of graduates and, where any is done, it is done by telephone, as in certain institutes in Mendoza, or by correspondence in a limited form in Buenos Aires.
- 1.33 In an environment in which the institutions do not have to compete for external resources there is little incentive to diversify or introduce new programs to meet the needs of the economy. With the exception of a few innovative initiatives, the institutions have very limited interaction with the labor market. In general, entrepreneurs do not participate in programs, curriculum design and the launching of initiatives. The curricula offered are not updated either. The areas of greatest growth (systems analyst, business administration) are the ones for which the most recent updating was done between 1985 and 1990, which represents a significant lag with respect to the technological advances posted in the sector. The complex administrative procedures for updating curricula have a negative impact in this process. The graduates' level of training is low, based on the sparse information available, since there is no systematic follow-up of their entry into the work force. While unemployment among graduates of higher education is lower than among the population as whole this is probably due more to the strong demand for qualified personnel than

to the match of the graduates' capabilities with employers' requirements.

- 1.34 The decentralized management of NUTHE entails an institutional structure in which the provincial governments, the Buenos Aires municipality and the education establishments play a central role. Although the national government does not have direct management responsibilities, it does have regulatory functions and responsibility for allocating financial resources for strengthening the system. The responsibility of the Secretaría de Políticas Universitarias [Secretariat of University Policies] (SPU) with respect to NUTHE is quite clear according to the Higher Education Law. But only recently has the SPU begun to treat this segment of education as a priority and to collaborate in the development of a set of policies to spur its organization and transformation in a manner consistent with the local and regional initiatives under way for the creation of modern tertiary institutions. With the implementation of the program detailed in this document, the SPU will have the policies and methods necessary for promoting orderly development of the sector.

D. Government strategy

- 1.35 The government has decided to rationalize and strengthen NUTHE as part of its general policy on education system development. To this end the country has significantly stepped up resource mobilization in employment-oriented education over recent years. In an initial stage, support was provided for the lowest levels of qualification by means of programs benefiting comprehensive education, worker training and mid-level technical education stipulated by the reform of the education system begun in 1993. These actions carried out by the Ministries of Culture and Education and of Labor are currently coordinated by the Consejo Educación-Trabajo [Education-Work Council]. The rapid technological change occurring in the context of the industrial and economic restructuring taking place in the country over the past few years and reflected in specific demands from the labor market for human resources with a high level of technical training, points up the need for due attention to be paid to postsecondary technical education.
- 1.36 More specifically, the aim is to: (i) adjust higher education to labor market demand, with emphasis on training of technical middle-management personnel and the managers needed in SMEs and services (external efficiency); (ii) offer short higher education opportunities in order to relieve the pressure on the universities and reduce the dropout rate in higher education as a whole (internal efficiency); (iii) promote more equitable distribution of higher education opportunities with real job outlets for graduates of comprehensive schools (equity); (iv) instill respect for the scientific and technical branches of comprehensive secondary education by providing their graduates with opportunities for

pursuing higher level training; and (v) meet the demands for training of business management staff and ensure that optimum use is made of existing facilities and infrastructure.

E. Strategy and justification for Bank participation

- 1.37 The Bank's strategy in Argentina is concentrated in three basic areas: (i) reducing poverty and raising the quality of life through provision of employment and increasing of service coverage; (ii) raising the productivity and competitiveness of the tradable goods sectors; and (iii) pursuing reform of the State and decentralization of services to provinces and municipalities. The characteristics of this project are consistent with said strategy, especially as regards raising productivity and making tradable goods more competitive.
- 1.38 This operation would give continuity to the support that the Bank has been furnishing since 1993 for upgrading education, technology and productive efficiency, especially in microenterprises and small and medium-sized businesses. The Bank has in fact granted 11 loans aggregating US\$1.847 billion for financing eight programs benefiting basic education, job training, technological development and productive enterprises. These loans are currently in different stages of implementation and a total of US\$649 million has been disbursed so far.

II. THE PROGRAM

A. Objectives

- 2.1 The general objective of the program is to increase the availability, quality and pertinence of specialized labor through the institutional development of nonuniversity technical higher education. To accomplish this objective, associative projects involving the private sector, technical education institutions and/or universities, and provincial and/or municipal governments will be promoted that meet the needs of the labor market, and generate high-quality alternatives to university education and new management models. These projects will have to raise resources additional to those obtainable from public sources, heighten the efficiency of education in terms of unit costs and student learning performance and improve the linkage of the tertiary institutions with the other levels of education.
- 2.2 Specifically, the program proposes to offer funding and other incentives to the provinces, municipalities, public and private academic institutions and the productive sector for them to jointly establish innovative institutional models that will operate in a self-sufficient and decentralized manner in accordance with criteria of effectiveness, efficiency and equity and will meet the needs of the productive sector and their area of influence. Adoption of this form of institutional, juridical and academic organization in response to the market's needs will convert existing institutions into the "new institutes of technology" that would be supported by the program.

B. Description

- 2.3 To achieve the objectives set out, financing would be provided for the establishment of: (i) a system of accreditation and evaluation for institutions and programs; and (ii) a National Fund for Financing Institutes of Technology (FONIT), which are described below:
 1. System of accreditation and evaluation for institutions and programs (US\$9 million)
- 2.4 The intention is to create and implement a system for accreditation and evaluation of institutions and programs in order to rank them at the provincial level in accordance with the quality of their offerings and to publish the findings. The operation of the system will be based on the work of independent experts whose recommendations will be submitted for decision by a board made up of persons with business experience, provincial experts in administration and education planning and professionals from tertiary sector education institutions, who will be selected on the

basis of merit and professional qualifications (paragraph 3.7). The accreditations of the institutions benefited by the program will be for five years, while the evaluation process will be continuous, with results being measured at different points and upon completion of the program.

- 2.5 The criteria for accreditation of the institutions will take into account: (a) **flexible operation model**: (i) human resources: teaching staff, employment regulations, contracting on an hourly basis, teachers from the production sector, system of evaluation and incentives and teacher/administrative staff ratio (20%); (ii) infrastructure and equipment: use of physical space and equipment, maintenance and leasing of premises (10%); (b) **financial management**: (i) sustainability: table of investments and expenditures projected over a ten-year period and financial and budgetary management techniques (10%); (ii) alternative sources of funds: cost recovery, private contributions and agreements with enterprises for retraining courses (20%); (c) **job market studies and systems for following up on graduates** (20%); and (d) **information system**: updating of statistical data, and mechanisms for dissemination and information concerning demand (20%).
- 2.6 The criteria for evaluating the programs will take into account: (a) **curriculum model**: definition of the technical-vocational profile of graduates and its relation to demand, skill-based curriculum, modulation, courseload, practical and classroom activities, hours of internship work and practical work, and adaptation and coordination with other levels of education (40%); (b) **quality of teaching staff**: qualifications required, selection and recruitment methods, distribution of work load and percentage of teachers from productive sector (20%); (c) **adaptation of teaching and educational technical equipment** (10%); and (d) **linkages with labor market**: information on demand by occupation, participation in curriculum design, financial and other contributions, employment generation, agreements on internships and purchase of retraining services and courses (30%).
- 2.7 The following actions will be funded: (i) contracting of approximately 4,700 man-months of services of experts in curriculum development (45%), institutional development (20%) and selection and operation of laboratory technical equipment and materials (35%); (ii) procurement of technical equipment and work supplies to operate the accreditation and evaluation system; (iii) printing and distribution of regulatory and operating documents under the responsibility of the MCE's SPU; (iv) costs of public dissemination of accreditation and evaluation findings; and (v) operating costs inherent in these processes. The accreditation and evaluation system will serve to assess the relevance of the new institutional projects to the requirements of FONIT (paragraphs 2.8 to 2.13) prior to their financing with program funds.

2. National Fund for Financing Institutes of Technology (FONIT)
(US\$148,175,000)

- 2.8 The objective of FONIT is to finance technology institute projects that are innovative in terms of their operation and the curricula offered, in order to foster an improvement in the quality, efficiency and relevance of nonuniversity higher education with respect to the labor market. Through the fund, for enrollment of approximately 15,000

students (11% of the total enrollment of the technical-vocational institutes), the goals set forth in Table II-1, will be sought.

Table II-1 GOALS OF FONIT	
(i)	To finance 50 to 60 innovative projects with an average enrollment of 300 students each.
(ii)	To create 125 new programs in industrial technology (25%), services (60%) and health (15%).
(iii)	To achieve retention rates of at least 66% in the first cohort and to progressively increase them to 75% by the year 2002.
(iv)	To increase the percentage of graduates finding employment from 40% in 1996 to 75% by the year 2002.
(v)	To benefit 5,000 workers requiring retraining.

- 2.9 In addition, (i) the institutional impact produced by the projects financed in the transformation and improvement of the present nonuniversity higher education system, as measured by the number of institutions in the jurisdiction that adopt similar innovative models and the program rules and standards, will be verified, as will (ii) the financial sustainability of the models originally financed, through availability of alternative sources of public or private funding.

- 2.10 The innovative projects will be required to match the following basic characteristics:

- (i) New operating models: academic and financial autonomy, flexibility in the administration of their teaching staff, cost recovery, curricula that meet the market's needs and monitoring and evaluation mechanisms that include follow-up on graduates.
- (ii) Institutional development: transformation of the existing education institutions into institutions in which the province, the productive sector and other socioeconomic development agents within their service area all participate fully and effectively.
- (iii) Mobilization of private funding: coverage of capital and recurrent costs by means of funds that are additional to those allocated by the national and provincial governments.
- (iv) Efficiency: ensuring that the graduates find employment, that costs per graduate and per student/year are

reasonable and that the necessary conditions are met for the students' learning process to be rated as excellent.

- 2.11 Within this context, it will be left up to the institutions concerned: (i) to select the institutional model they want to adopt, either that of the advanced technical institutes or the university college model; (ii) to formulate their own curricula and programs and the hiring and evaluation system for their teaching staff. The curriculum structure will be organized in accordance with the profiles of graduates meeting the productive sector's requirements. The possible validity of this structure for transfer to the university would be determined by the university in each case, thus avoiding it being the latter which determines the curriculum structure with a view to transfer rather than considering the labor market's requirements as is the intention; and (iii) to independently adopt the forms of legal organization and administration, management, operation and maintenance of the new institutional models.
- 2.12 The projects submitted to the fund will be required to contain an institutional and financial development proposal and an academic development proposal. The former will have to include at least the following: (i) the institutional mission, objectives and goals for the purpose of incorporating new operating models, raising private resources, incorporating efficiency criteria and providing demonstration examples for the sector as a whole; (ii) the academic proposal will contain specific profiles that will lead to the creation of programs adapted to the labor market and train high-caliber graduates equipped to enter the working world; and (iii) both proposals will also include a detailed description of activities and of those responsible for them, with their sources of financing, costs and investment schedule and are to be prepared with a view to offering training and extension facilities to the productive sector. These projects will be carried out under any of the forms of association envisaged in the current legislation applicable to companies, as foundations or civil associations, with participation by the provinces and/or municipalities and the business sector and also with opportunities for the involvement of existing education institutions.
- 2.13 FONIT funds will be used to finance, on a nonreimbursable basis, up to a maximum of 60% of the cost of the project, while the remaining 40% (at least) will be contributed by the institutions benefited. The projects would receive resources from the fund for investments in: (i) organization and management; (ii) development of curricula and texts and other teaching materials; (iii) human resource management and training; (iv) educational equipment; (v) laboratory and workshop equipment; (vi) repair and/or expansion of infrastructure and furniture; (vii) hiring of visiting instructors; and (viii) bibliographic material, computer support and reproduction and distribution of information materials upon request and for the general public.

C. Sizing

- 2.14 The program has been sized on the basis of the following: calculation of the number of institutes and determination of the proportion of institutes of basic technology, services and health out of the total. This proportion was determined by means of: (i) a study of present supply in a statistically representative sample of establishments which encompassed 20% of the present supply of tertiary technical education and made it possible to estimate the following proportions: 9% in industrial technology, 67% in services, 4.4% in health and 14% in other unspecified fields; (ii) a study on the total supply of nonuniversity technical higher education programs in the country classified by branch, which produced the following breakdown: basic sciences and technology, 18.4%; social and human sciences, 77.2%; and health sciences, 4.4%; (iii) it was taken into account that the public and private sectors have concentrated on setting up institutes with a low level of investment in equipment, which is due more to a cost problem than a demand problem. On the basis of the costs of the different types of institutes, the breakdown by modality as noted, the average size of the existing institutes and their number and geographic distribution, it was determined that the program will be able to support the implementation of between 50 and 60 innovative projects: 15 (25%) in basic technology, 35 (60%) in services and 10 (15%) in health, with an estimated average enrollment of 300 students in each.
- 2.15 In the sizing of the program due account was also taken of the costs of installation, operation and maintenance of four tertiary institutions set up in the country in the last three years, namely two in the industrial technology field and two in services, and also the costs of estimates connected with around 24 requests for innovative projects that are in varying stages of development (paragraph 3.13).
- 2.16 The establishment and operation of the accreditation and evaluation system for institutions and programs was sized taking into consideration that the system would be applied, during execution of the program, to the estimated 50 or 60 innovative projects that will be financed with FONIT resources, the capacity already installed and operating in the MCE with a similar system for the universities, and the quantity and type of services, equipment and personnel required to ensure its effective functioning.

D. Cost and financing

1. Cost

- 2.17 The total cost of the program is estimated at US\$165 million, broken down by sources of financing, as presented in Table II-2 below:

Table II-2
COST AND SOURCES OF FINANCING OF THE PROGRAM
(US\$ thousands)

Categories	IDB	Local	Total	%
1.0 Administration	2,000	5,000	7,000	4.0
2.0 Accreditation and evaluation system	5,000	4,000	9,000	5.5
3.0 FONIT	74,675	73,500	148,175	90.0
4.0 Finance charges	825	-	825	0.5
4.1 Inspection & Supervision	825	-	825	0.5
TOTALS	82,500	82,500	165,000	100.0
Percentages	50.0	50.0	100.0	

2.18 The cost of the investments by expenditure headings is detailed in Table II-3:

Table II-3
COST IN INVESTMENTS BY EXPENDITURE HEADING
(US\$ thousands)

Heading	Total
Administration	7,000
- PPF	1,291
- personnel	3,709
- equipment and materials	286
- promotion and publications	100
- operation	270
- supervision	1,344
Accreditation and evaluation	9,000
- Consulting services for accreditation and evaluation	7,000
- Consulting services for project preparation	1,400
- Consulting services for sector studies	300
- Technical equipment, dissemination and operating costs	300
FONIT	148,175
- Works and furniture	35,000
- Teaching equipment and materials	63,000
- Teacher training	14,165
- Hiring of visiting instructors	33,100
- Dissemination and promotion	2,910

2. Financing

2.19 The Bank financing would be provided from the ordinary capital. The local counterpart funding would be obtained from the budget of the national Ministry of Education and Culture. The administrative costs would be included in the operating and personnel costs of the Management Board and Executive Unit of FONIT (paragraphs 3.7 to 3.9), which would be responsible for the execution of the program.

- 2.20 Of the resources of loan 915/OC-AR of US\$1,291,000, US\$830,000 was used from line of credit PPF-003/AR for preparation of the program and the remaining US\$461,000 will be used to defray the initial costs of its execution. The full amount of these funds is to be deducted from the first disbursement under the proposed loan, chargeable to the Administration category.

III. THE BORROWER AND THE EXECUTING AGENCY

A. The borrower

- 3.1 The borrower would be the Argentine Republic, which would designate the Ministry of Culture and Education (MCE) as executing agency and the institutes of technology financed by FONIT as coexecuting agencies. The executing agency would transfer the proceeds of the proposed loan and the government contribution to the coexecuting agencies, through the national budget, on a nonreimbursable basis.

B. Execution period and disbursement period

- 3.2 The execution period would be 4.5 years and the disbursement period for the loan proceeds five years, both counting from the effective date of the prospective loan contract.

C. Basic arrangements for execution

1. Conceptual aspects

- 3.3 The basic plan for execution of the program was designed so that the work involved would be shared between the national MCE and the beneficiary institutes of technology. In this context, the plan was that the national agency should spur the development of the sector by instituting innovative mechanisms for accreditation and evaluation, for financing demand, and for follow-up and measurement of project results; and that the beneficiary institutions should be responsible for the execution of their projects, through which they would gain experience in consolidating their course offerings and institutional organization and management.
- 3.4 The plan of execution also takes into consideration that the FONIT contributions would be complementary to the institutions' own resources, since the idea is to reorganize existing institutions. Moreover, the nonreimbursable nature of the FONIT resources and their direct transfer to the institutions will also require decentralized execution mechanisms to speed the pace of the investments and accomplishment of the financing's objectives.

2. Specific institutional, financial and operational aspects

- 3.5 Institutional: the lines of authority for administration of higher education were established in 1993 when the Secretariat of University Policies (SPU) was created in the MCE and a proposal for restructuring the sector began to be prepared, which materialized as the Higher Education Law approved in 1995. The IBRD's program to reform University Higher Education (PRES) provided investments totalling US\$30.8 million to create the National University Accreditation and Evaluation Commission (CONEAU) and for

administration of the Fund for Improvements in the Quality of University Education (FOMECE), a physical interconnection network for the rapid transmission of data between the universities and the MCE, and a system of financial and budgetary information and interuniversity resource allocation. Through the execution of that program, the SPU gained valuable experience for the implementation of the program proposed in this document. In this context, special mention should be made of its interaction with the productive sector and the universities, the management of the university program evaluation and accreditation system, the preparation of follow-up, monitoring and progress reports, and the maintaining of up-to-date accounting and financial records. For the purposes of the program under consideration here the SPU will expand the information system to incorporate the results achieved with the implementation of the projects financed by FONIT and to publish their findings. The SPU will also be responsible for the maintenance of the accreditation and evaluation system that would be created with the program and its application in the other sector institutions in coordination with the provincial ministries of education.

- 3.6 The administrative structure of this program will consist of: (i) the Management Board and Executive Unit of FONIT; and (ii) the coexecuting agencies, which are described below.
- 3.7 The Management Board would be the authority responsible for FONIT's operations and would have the financial self-sufficiency required for efficient administration of the fund's resources. The Board will be chaired by the secretary of university policies plus four other persons with business experience in both the productive and services sectors and in technical education institutions. The members will be selected by the Minister of Culture and Education on the basis of merit and professional background, from a slate prepared by the SPU.
- 3.8 The main functions of the Board would be: (i) ensuring that the program's objectives are fulfilled; (ii) ensuring the transparency of all the stages of the project evaluation and accreditation process; (iii) deciding on project financing; (iv) analyzing and formulating recommendations on the basis of the follow-up, monitoring and program evaluation reports prepared by the Executive Unit; (v) recommending that studies be conducted about the impacts of execution of the projects in the sector, which will help to plan actions and set long-term policies; and (vi) appointing the executive director and the personnel of the Executive Unit.
- 3.9 The Executive Unit of FONIT will report to the Management Board and will be responsible for: (i) issuing the calls for submission of projects; (ii) hiring the experts who will accredit and evaluate the projects; (iii) performing the follow-up on the projects financed; and (iv) performing the other administrative tasks connected with the program. The Executive Unit will be made up of

the executive director, 13 technical and administrative professionals with business experience, and support personnel, for a total of some 22 persons.

- 3.10 The coexecuting agencies would be the institutes of technology financed by FONIT and would be responsible for executing the activities envisaged in their proposals, procuring authorized goods and services, and performing the follow-up and monitoring of the project and the other tasks agreed upon.
- 3.11 Financial: between 1991 and 1995 the budget handled by the MCE increased by 90%, and if the funds included in the budget for 1997 are taken into account this increase would add up to over 100%. In absolute values, the budget rose from almost US\$1.2 billion in 1991 to over US\$2.2 billion in 1995. Consolidated spending on education, which was US\$3.737 billion in 1991, amounted to US\$7,800 billion in 1996. In the latter year spending on nonuniversity higher education totalled US\$333 million and the figure for 1997 is put at US\$354 million. According to the investment schedule set out below, the estimated annual local contributions would be fully attainable with the budget resources that would be available.
- 3.12 Operating: in order to set execution guidelines for the more delicate aspects of the program, i.e. for carrying out the accreditation and evaluation of institutions and programs and creating and operating FONIT, an operations manual has been prepared that describes in detail the phases and interfaces of the initial setups of both and the functional relationships and sequential actions that will require investment, follow-up and inspection. The manual includes, *inter alia*: (i) instructions for project formulation; (ii) the procedures for the processing and selection of projects; (iii) the general and specific criteria for the accreditation and comprehensive evaluation of the projects; (iv) the guidelines for project evaluation, with the respective weighting factors and values; (v) the description of goods and services eligible to be financed; (vi) the discretionary limit for project approval; (vii) the criteria for calculating project costs; and (viii) the composition, objectives and functions of FONIT's Management Board and Executive Unit.
- D. Status of preparation, special conditions precedent to the first disbursement and investment schedule
- 3.13 The MCE currently has in hand 24 applications for innovative projects aggregating approximately US\$96 million, 12 of which, representing some US\$55 million, would, in the short term, meet the program requirements. On the basis of these applications, in the course of the analysis an investment schedule was drawn up for the program that takes into account the time it would take to formalize the 10 most advanced projects and for formulation, analysis, processing, approval and execution of the other projects that would

be financed through FONIT. In addition, the special conditions precedent to the first disbursement were identified. The result of this exercise is set out in the following tables:

Table III-1
INVESTMENT SCHEDULE ^{a/}
(US\$ millions)

Source	Year 1	Year 2	Year 3	Year 4	Year 5
IDB	18	10	30	20	4.5
Local	2	14	35	25	6.5
Totals	20	24	65	45	11.0
Percentages	12	15	40	27	6

^{a/} The relatively low investment in the first two years of program execution is explained by the fact that the projects are subjected to an accreditation and evaluation process never before applied in the country, before their financing is approved.

Table III-2
SPECIAL CONDITIONS PRECEDENT TO FIRST DISBURSEMENT

Condition	Time allowed ^{a/}	Means of verification
Creation of FONIT	2 months	Decree of President of the Republic
Entry into effect of the program operations manual negotiated with the Bank	1 month	MCE resolution
Formal approval of at least three projects and evidence that the parties have negotiated the draft version of the respective agreement	4 months	Resolution of FONIT's Management Board and minutes of negotiation of the terms of the agreement signed by the parties

^{a/} Estimated time required after the negotiations, taking into account that: (i) during the analysis mission the drafts of all documents for meeting these conditions were discussed, and (ii) the MCE would use the balance available under the PPF component of loan 915/OC-AR for finalizing the preparation of the conditions precedent, hiring the FONIT staff necessary for starting execution, and preparing the forms and software needed to complement the "project presentation manual", including the indicators and weighs for each of them (summarized in the Table of Weighs in the section on "evaluation guidelines for evaluators" in the operations manual).

E. Follow-up, monitoring and evaluation of progress

- 3.14 The executing agency will prepare these reports and submit them to the Bank within the first 60 days of the respective year as laid down in the logical framework included as Annex III-3 to this document. Among other things, these reports will measure the student retention and dropout rates, the average number of years taken to graduate, the employment rate and incomes of graduates, together with the cost-effectiveness of postsecondary technical education and the relevance of the institutional/financial and academic proposals of the projects to the mutually agreed requirements, rules and procedures. For the purpose of this program, the follow-up and monitoring reports would be produced by

the institutes of technology and consolidated by FONIT prior to submission to the Bank while the progress evaluation reports would be produced by independent evaluators and submitted to the Bank through FONIT.

F. Ex post evaluation

- 3.15 In view of the innovative nature of the program, it is considered advisable for the Bank to perform an evaluation of its impact two years after the last disbursement from the financing, using the same methodology as was employed for its ex ante evaluation. The database that will be built up annually through the follow-up and monitoring reports and the records of results will be used for this purpose.

G. Procurement of goods and services

- 3.16 The program calls for using the Bank's procedures for calls for bids and the contracting of consulting services. International competitive bidding will be required for contracts exceeding US\$350,000 for goods and US\$5 million for works. Bank approval will be required in advance for contracts in excess of US\$50,000 for individual consultants and for contracts above US\$100,000 for consulting firms. It is recommended that the supporting documentation for these processes be reviewed by means of ex post sampling. The tentative procurement plan is as follows:

Table III-3
TENTATIVE PROCUREMENT PLAN

Main procurement under the program	Financing	Method	Reg./ Prequalification	Year
Consulting services (US\$9 million)	IDB (50%)	LCB/ICB ^{a/}	Yes/No	1, 2, 3
Works (US\$35 million)	IDB (50%)	LCB/ICB	Yes	1, 2, 3
Educational equipment and materials (US\$63 million)	IDB (50%)	LCB/ICB	No	1, 2, 3, 4

^{a/} LCB - Local Competitive Bidding
ICB - International Competitive Bidding

H. Revolving fund

- 3.17 It is recommended that a revolving fund be set up for an amount equivalent to 5% of the financing, in accordance with the Bank's current guidelines. It is further recommended that the executing agency retain the payment vouchers in respect of expenditures effected against the financing so that the Bank can review them.

I. External audit

- 3.18 The financial statements of the projects and the program, throughout the execution of same, are to be submitted to the Bank annually audited by the Office of the Auditor General of the Nation.
- 3.19 The prospective loan contract will also contain the Bank's clauses on sites and easements and inspection and supervision.

IV. BENEFITS, FEASIBILITY AND RISKS

A. Feasibility

- 4.1 The program presented in this document is part of a reform of higher education currently under way in accordance with the guidelines laid down in the Federal Education and Higher Education Laws. The program will consolidate complex sector reforms, particularly in the institutional and operating model, and will provide the tertiary institutions with incentives to increase their investments in the sector. The program is based on the perceived need to provide clear responses to the requirements of highly demanding labor markets in the context of intensifying international competition by adapting higher education and training. In addition, the resulting improvements in the efficiency of nonuniversity higher education will facilitate consolidation of the technical-vocational paths included in comprehensive education.
- 4.2 Specifically, the program will raise the efficiency, quality, relevance and cost-effectiveness of technical higher education by: (i) increasing alternatives for equipping graduates for swifter entry into the working world by means of support for postsecondary technical programs of short duration; (ii) promoting a new model of institutional and financial operation in close collaboration with the productive sector, which will ensure the relevance and permanent updating of the curriculum and foster diversification of sources of financing, including cost recovery; (iii) introducing mechanisms for accreditation and continuous evaluation of the programs in light of the market dynamics; (iv) introducing competition between the universities and the restructured tertiary education establishments; (v) transferring this competition to the tertiary education subsector itself with incentives for access to funds for personnel training activities, equipment and curriculum reform; and (vi) providing equipment and laboratories and teacher training in a number of establishments that would cover between one fourth and one fifth of the potential demand and serve to increase the quality of technical education.
- 4.3 The national political will for structural reform of the higher education system has been manifested mainly in the provision of funding for: (i) promoting accreditation mechanisms; (ii) setting up quality evaluation systems; (iii) promoting curriculum changes; (iv) supporting rigorous training and development for higher education; and (v) fostering competitive and transparent mechanisms for the allocation of public resources to technical higher education.

B. Economic analysis

- 4.4 Costs and benefits of the program: The benefits of the program are fundamentally of two types: (i) at the individual level and for society as a whole, the improvement in labor productivity and employability as a result of better work-oriented training, which are measured as the difference in expected earned income, utilizing the Household Survey data; and (ii) the systemic impacts of the program in terms of improving the internal efficiency of technical education, the relevance of this education and therefore the ability of its graduates to find employment, and also the sector cost-effectiveness parameters such as cost per graduate.
- 4.5 The program's costs are measured from both the private and the social standpoints. The private costs include both the opportunity costs of the students - measured as the income not received while they are studying - and the direct expenditures that have to be incurred in order to be able to study (transportation, materials and books). ^{3/} In addition to these, the social costs include the recurrent and investment costs of the program.
- 4.6 Methodology and return on the program: The methodology used (cost-benefit) consisted in estimating the social internal rate of return of the program. The benefits were estimated by constructing income profiles by education level and age based on the Household Survey data and estimating the income differential between individuals with complete tertiary technical education and those with complete secondary education. This income differential was then corrected by the probability of obtaining employment by age group and education level, and also by the changes expected in productivity during the useful life of the project. The recurrent costs of the technical schools that would be benefited by the program were estimated for a typical establishment with 400 students and a cost structure based on a specific survey made of a stratified sample of 62 tertiary technical institutions. Since the majority of the existing technical schools have significant shortcomings where equipment is concerned - which would lead to underestimating the weight of capital costs - the latter were estimated using data from the Technical Institute of Cuyo National University (ITU) in Mendoza, together with cost structure data from the member institutions of the Canadian Association of Community Colleges.

^{3/} The estimates made probably overestimate the private costs, both opportunity and direct: the former because two out of every three tertiary technical students work while studying, and the latter because it is not possible to ascertain precisely which part of the direct costs consists of incremental costs, i.e. expenses that would not have been incurred if the student were not studying. In any event, the return on the program, both private and social, would be even higher than that calculated.

- 4.7 Table IV-1 summarizes the results of these estimates, which vary depending on the student/teacher ratio and other internal and external efficiency parameters. In addition to an initial scenario which approximates the present conditions of the sector's institutions, three alternative scenarios were estimated: (i) the first results from improvement of the internal efficiency by reducing the dropout rate in accordance with the program targets of achieving a graduate/new student ratio of 2:3; (ii) the second envisaged a 15% improvement in graduates' earnings compared with the present system, resulting from the greater relevance and higher quality of the new programs ^{4/}; and (iii) the third scenario combines the improvements of the two preceding ones. The results show that the program would have a social rate of return of between 11% and 17% which is largely unaffected (between 0.1 and 0.2 percentage points) by the student/teacher (s/t) ratio but is more sensitive to improvements in the system's internal and external efficiency, which raises the IRR by up to five points.

Table IV-1
SOCIAL INTERNAL RATES OF RETURN
%

Scenarios	Low	Average	High S/T ratio
Initial	11.2	11.4	11.6
1. Lower dropout rate (higher retention)	12.8	12.9	13.1
2. Higher graduate incomes	14.5	14.8	15.0
3. Lower dropout rate and improvement in graduate incomes	16.5	16.6	16.8

- 4.8 Systemic impacts of the program: Given the strategic importance of the program in terms of contributing to organization, rationalization, and improvement of the efficiency and cost-effectiveness of technical tertiary education, the effect of the improvements in internal and external efficiency already referred to was also measured, in terms of certain key cost-effectiveness and cost-benefit indicators of the new programs. The results are presented in Table IV-2.

^{4/} Canadian experience suggests that graduates of tertiary institutions receive salaries equivalent to 81% of those earned by university graduates and that in some branches they do even better than university graduates. In Greater Buenos Aires, tertiary technical graduates from the present system earn 71% of what university graduates receive. It is estimated that to the extent that the new programs achieve levels of excellence consistent with international experience, this ratio would move closer to those observed in other countries. This would presume an increase in remuneration of approximately 15%.

Table IV-2
SOME IMPACT INDICATORS OF THE PROGRAM

Indicators	Initial	Lower dropout scenario (A)	Better graduate incomes (B)	Lower dropout rate and higher incomes (A + B)
Graduates to new students (%)	50	65	50	65
New students per institution	133	120	133	120
Graduates per institution	67	79	67	79
Total income differentials (US\$ billion)	1.115	1.307	2.025	2.374
Annual cost per student (US\$)	1,848	1,848	1,848	1,848
Total cost per graduate (US\$)	8,289	7,072	8,289	7,072
Benefit/cost ratio (B/C)	1.8	2.2	2.6	3.1
Net present value of benefits (US\$ billion)	1.459	1.710	2.086	2.445
Net present value of costs (US\$ million)	794	792	794	792

4.9 The program impact indicators show the importance of achieving improvements in the sector's internal efficiency, which would make it possible to improve the ratio of graduates to new students from the current level (estimated at around one graduate for every two incoming students) to two graduates per incoming student as a minimum in the new programs. This would enable a significant reduction of the order of 15% in the cost per graduate and improve the program's ratio of benefits to costs of 1.8 to 2.2. The table also underscores the importance of improving the programs' external efficiency (relevance), which is measured by the graduate employment rate and the salary levels at which graduates are employed. An improvement of the employment rates to bring them up to levels comparable with those achieved by the Mendoza ITU in the first cohort and the productivity improvements that would result from education of better quality and greater relevance, in line with international experience, would make it possible for graduates to command salaries around 15% higher than those obtained by graduates of the present system. This in turn would bring the benefit-cost ratio up to 2.6. The combination of improvements in internal and external efficiency indicators would raise the program's rate of return even higher, making the benefits 3.1 times the costs of the program in present value.

4.10 In view of these results, which emphasize the program's potential impact on the technical tertiary education subsector, the corresponding internal efficiency, cost-effectiveness and employment rate targets were incorporated into the logical framework agreed on with the Argentine authorities.

C. Impact on women

4.11 Currently 57% of technical higher education students in Argentina are women, which indicates that access presents few problems for them; however, 22% fewer women than men register in industrial technical courses. To correct this situation, the operations manual for this program includes measures that assign priority to

innovative schemes for increasing the number of women who register for and remain in industrial technical courses. Moreover provision has been made for the follow-up and monitoring systems to breakdown the data on employment, dropout, earnings, etc., by gender, in such a way that each year the necessary indicators will be available for taking such corrective measures as are considered justified.

D. Environmental impact declaration

- 4.12 At its meeting of March 28, 1995, the Environment Committee classified this as a category II operation in recognition of the fact that its implementation would not produce any harmful impact on the environment.

E. Distributional impact

- 4.13 While the program is not directly aimed at reducing poverty, its impact will be decisive for improving the quality and relevance of technical education and therefore the productivity and employability of the beneficiaries, thereby helping them find employment and improving their income level. In this way, the program will contribute significantly toward improving the employment situation of the target population, namely young people who choose technical job training as opposed to those who decide to go on to university.
- 4.14 The distribution by income level of students in the tertiary technical institutes is less regressive than that of the university students, who are typically concentrated in the upper quintiles. Moreover, the Household Survey findings show that unemployment disproportionately affects the first two income quintiles, which are precisely the groups who have been hardest hit by the drop in earned income and the increase in poverty in recent years. It is accordingly to be expected that technical training of better quality and more directly relevant to the labor market will benefit the lower and middle quintiles more than the upper ones.
- 4.15 In addition, the gains in efficiency in higher education will help to hold down cost increases at this level, so that more resources can be devoted to secondary education, one of the chief sources of inequity and where a large part of the efforts for improving the quality of education and tailoring technical programs to the employment market are currently concentrated.
- 4.16 This program will benefit mainly secondary school graduates, who make up a relatively favored group in Argentina, and therefore cannot strictly be classified as targeting low-income segments of the population in accordance with paragraph 2.15 of the Eight Replenishment document (AB-1704). According to paragraph 2.13 of the same document, the program can be classified in the social equity and poverty reduction category since it involves actions in and reform of the education sector.

F. Risks

- 4.17 Although political tensions are traditionally high between the central government and the provinces, these have been minimized in the education sphere in recent years and should not directly affect the implementation of the program. There is a consensus between the technical education institutions, the provinces and the State concerning the objectives and the main components of the program, and the jurisdictions and local authorities and private organizations were actively involved in the preparation process and their assessments and opinions were recognized in the basic studies.
- 4.18 The first risk relates to the legal framework of the reforms. A Higher Education Law was approved recently and contains a special chapter devoted to nonuniversity higher education, which underscores the State's support for special projects. Although this law has yet to be subjected to an implementation analysis by the Secretariat of University Policies, this risk is not considered critical in the implementation of the proposed program, execution of which will in fact strengthen the intended application of the law.
- 4.19 The second risk is connected with the possibility of erratic selection of projects or of partial financing thereof. To minimize this risk the operations manual requires: (i) an annual outside audit that will cover the physical and financial aspects; and (ii) a system of follow-up, monitoring and evaluation of progress, which will report constantly on the effectiveness and efficiency of the program's administration, the transparency and objectivity of the project selection procedures, and fairness in the granting of financial support.

LOGICAL FRAMEWORK
NONUNIVERSITY TECHNICAL HIGHER EDUCATION REFORM PROGRAM

OBJECTIVES	MINIMUM GOALS	INDICATORS	MEANS OF VERIFICATION
To finance through FONIT ITEs that are innovative in content and in their curriculum with the aim of improving the efficiency and relevance of higher education with the labor market.	(i) To achieve retention rates of 66% as a minimum in the first graduating class and to progressively increase this to 75% by the year 2002; (ii) to increase the employment rate from 40% in 1996 to 75% by 2002.	(i) Retention and dropout rates; (ii) average number of years needed to graduate; (iii) employment rate and salaries of graduates one year after graduation; and (iv) cost-effectiveness indicators: cost per student and cost per graduate.	(i) National and provincial statistics; (ii) NUTHE program information system; (iii) follow-up studies conducted by the ITEs.
To accredit postsecondary education institutions whose structure is autonomous, open to the market.	(i) To accredit 50 to 60 innovative ITEs in the first two years of the program.	Legal and institutional structure satisfies the innovation requirements: (i) association between provincial and/or municipal government and productive sector, and optionally with a public or private higher education institution; (ii) objectives and goals in accordance with the employment market's needs; (iii) flexible administrative structure; (iv) financial sustainability after FONIT; (v) rate of private participation; (vi) cost-recovery mechanisms; (vii) updated data on employment market; (viii) follow-up of graduates; (ix) information on demand; and (x) number of retraining courses.	Management Board reports approving evaluation program. Evaluation reports and the financial and institutional development proposals.
To create short technical programs for secondary school and worker retraining, which meet with the requirements at national level and in the areas of greatest demand of each institution.	To create 125 new programs in the job areas identified as being in greatest demand in accordance with the following approximate breakdown: (i) basic industrial technology (25%); (ii) services (60%) and health (15%).	Academic and curriculum proposal meets innovation criteria: (i) curriculum is modular and flexible, skill-based; (ii) objectives and goals consistent with updated employment demand; (iii) sound ratio of classroom hours to in-plant internships; (iv) qualification of teaching staff; (v) % of teachers from productive sector; and (vi) quality of equipment.	Management Board reports approving evaluation program. Evaluation reports and the academic proposals.
To train technicians by short courses that will equip them effectively in the areas of greatest demand and requiring retraining.	(i) To benefit 15,000 young secondary graduates (11% of the present enrollment); (ii) to produce a minimum of 10,000 graduates (66%) of whom 7,500 (75%) would obtain employment; (iii) to benefit 5,000 workers requiring retraining.	(i) Number of graduates; (ii) employment rate; (iii) salary level; and (iv) number of workers.	(i) ITE information system; (ii) follow-up of graduates; (iii) statistics on reform program information system; (iv) statistics on internal efficiency, and (v) statistics on enrollment and retraining courses.

LEG/OPR1/AR-1957
Original:Spanish

PROPOSED RESOLUTION

**ARGENTINA. LOAN /OC-AR TO THE REPUBLIC OF ARGENTINA
(Non University Technical Higher Education Reform 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 Republic of Argentina, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a non university technical higher education reform program. Such financing will be for the amount of up to eighty two million five hundred thousand dollars of the United States of America (US\$82,500,000), which are part of the Single Currency Facility of the Ordinary Capital resources 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.