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STAFF APPRAISAL REPORT

SECOND EDUCATION PROJECT

REPUBLIC OF PORTUGAL

December 7, 1979

Education and Manpower Development Division
Europe, Middle East and North Africa Region

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Currency Equivalents

Currency Unit	=	Portuguese Escudo (Esc.)
Esc. 47.6	=	US\$1.00
Esc. 1	=	US\$0.021
Esc. 1 million	=	US\$21,000

Measures

1 m2	=	10.76 sq. feet
1 km2	=	0.38 sq. miles
1 hectare (ha)	=	2.47 acres

Fiscal Year

January 1 to December 31

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REPUBLIC OF PORTUGAL

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REPUBLIC OF PORTUGAL

Basic Data (1977)

Total Population	9.73 million	
Estimated Rate of Population Growth (1970-77)	0.8 % p.a.	
Per Capita GNP	US\$1,850	
Literacy Rate (1975)	70%	
	<u>Gross</u> <u>a/</u>	<u>Net</u> <u>b/</u>
Primary School Enrollment (Gr. 1-4) as a Percentage of Age-Group 7-10	137% 129% 132%	96% male 92% female 94% total
Preparatory School Enrollment (Gr. 5-6) as a Percentage of Age-Group 11-12	87% 85% 86%	58% male 56% female 57% total
Secondary School Enrollment (gr. 7-11) as a Percentage of Age-Group 13-17	58% 58% 58%	33% male 36% female 35% total
Higher Education Enrollment as a Percentage of Age-Group 18-22	14% 9% 12%	6% male 4% female 5% total
Central Government Expenditure on Education As a Percentage of Total Government Expenditure	18.2% recurrent 7.8% capital 15.4% total	
Central Government Expenditures on Education As a Percentage of GDP	3.6%	
Total Expenditures on Education, Public and Private, As a Percentage of GDP	4%	

a/ Gross enrollment ratio including over-age students.

b/ Excluding both over-age and under-age students.

GLOSSARY

MAP : Ministry of Agriculture and Fisheries

ME : Ministry of Education

I. THE EDUCATION SECTOR

Socio-Economic Background

1.01 Portugal is now in the sixth year of a transitional and difficult period of restructuring its socio-economic system to meet more equitably the needs and aspirations of a democratic society and of an economy becoming increasingly oriented toward entry into the European Common Market. The situation is complicated by a severe but improving unemployment problem; a situation in which large numbers of skilled workers, university graduates and young and unskilled workers are either unemployed or underemployed. The unemployment rate was at a high 12.7% of the labor force in 1976, but in the last two years has fluctuated between 7% and 8%. Consequently, skilled worker training centers which because their unemployed graduates qualify for a higher rate of unemployment compensation had been maintained at less than half capacity during 1976-78, are planned to be near full capacity by the end of 1979.

1.02 Both Bank and government studies indicate that if the Portuguese economy is to attain even a modest growth in the medium term and continue alleviating the unemployment problem, it is necessary to increase investments and outputs in the two major areas of agriculture and export-oriented manufacturing. In recognition of this, actions and investments are currently being initiated to improve the situation in these two priority sectors.

1.03 The development program will place considerable demands on the education and training system which is not adequately developed either quantitatively or qualitatively to meet these demands. The more glaring deficiencies are in the training of industrial and agricultural technicians, agricultural extension personnel and farmer training, and in the quality of training of agricultural, engineering and science professionals, with lesser but still significant deficiencies at the vocational training levels.

Development and Reform of the Education and Training System

1.04 National economic and social development policies and programs are dependent upon the continuing efforts of the formal and non-formal education and training system in improving the quality and quantity of appropriately trained manpower to meet the rapidly evolving needs of the country. The development of the education and training sector has been seriously constrained in recent years by tradition-bound inequities and imbalances, by the continuing rapid changes in government and the attendant lack of continuity in education planning, policies and management. In recognition of the development role of education and training and the constraints of recent years which have hindered its efforts to develop a comprehensive education strategy, the government has formulated broad strategy objectives focusing mainly on:

- (a) Extending compulsory education from four to six years and at a later date to nine years, while assuring access to such education for students in the more remote areas through appropriate school provisions. A comprehensive school mapping exercise now in the process of being completed will provide a basis for a more equitable distribution of educational opportunity.

- (b) Improving the internal efficiency and quality of schooling. The high repetition rates in 1973-74 of 24%, 14% and 22% respectively for primary, preparatory and secondary schools are being significantly reduced through the introduction of a form of automatic promotion.
- (c) Restructuring and reorienting secondary education and training to meet manpower needs (para. 1.13). A rapid restructuring of secondary education is being undertaken by the government through the integration of the academic and technical schools into a single diversified educational system, and extending upper secondary education from the current two-year program (grades 10-11) to three years. Practical studies will be required of all students and opportunities for in-depth vocational studies will be available to more than 50% of upper secondary students, of which about one-third would be in the industrial skills which are in short supply. This emphasis upon vocational studies is being complemented by the industrial skills training program of the Ministry of Labor which will be operating at full capacity by the end of 1979. Ongoing studies are determining the kinds of skills training required in each region.
- (d) In recognition of the need for reforms in post-secondary education, the government is: restricting university enrollments in accordance with manpower requirements; expanding technician training; and upgrading engineering and science instruction. Furthermore, the government is acutely aware of the major deficiencies in agricultural education and training and the increasingly important role of well-trained agricultural professionals and technicians in improving and expanding the rural extension service, farming training, farmer cooperatives and in applied agricultural research. Consequently, the government attaches significant importance to the expansion of agricultural technician training and in upgrading university agricultural instruction, as well as the related program of farmer training. The need for upgrading and expanding health technician training is also recognized and a study detailing its needs and cooperative actions required between the Ministries of Education and Social Affairs is being carried out with bilateral assistance.
- (e) Improving the quality and professional competence of the teaching force at all levels. A major effort was initiated in the first education project (Loan 1559-PO), and is to be expanded in the proposed second project to improve the quality and bring into balance the supply and demand of qualified teachers at the various levels. The program of improvement includes pre-service teacher training at the three-year post-secondary level for primary school (grades 1-6) teachers and at the university degree level for all secondary teachers including commercial,

agricultural and industrial teachers. An extensive in-service and out-reach teacher improvement program is also in the process of being initiated under the first project and is to be expanded under the proposed project.

- (f) Strengthening business and industrial management capabilities. The managerial deficiencies existing at the time of the 1974 revolution have been further aggravated by the post-revolution emigration of top managers and the greater level of managerial abilities required for successful performance under current economic conditions. Some 20,000 managers in the public and private sectors require upgrading of their production and marketing management skills. The problem is being addressed with assistance under the first education project through the development of a broad range of training programs at two new management training centers under the Ministry of Industry, as well as through complementary training at an existing training center under the Ministry of Planning. Particular emphasis is to be placed upon management assistance to medium and small scale export oriented industries to strengthen their competitive positions.

1.05 Additionally, the government is proposing to take more effective action in regard to adult and literacy training. A January 1979 law aims at the elimination of adult illiteracy and assuring basic education opportunity for all and calls for the rapid development of a national plan of action. Consequently, a National Council for Basic Adult Literacy Education has been organized and is operational. An action program is to be elaborated before the end of 1979 and the government has expressed interest in Bank assistance towards development and implementation of the project.

1.06 In recognition of significant deficiencies in educational planning and curriculum development, technical assistance for both specialist assistance and fellowship training abroad in these fields is being provided under the first education project.

Educational Issues

1.07 The principal issues, which must be addressed, relate to the areas of: (a) basic education, (b) adult education and literacy training, (c) teacher training, (d) farmer training, and (e) meeting manpower training needs.

(a) Basic Education (Formal System)

1.08 Enrollments in the first four grades of the primary school are equivalent to 132% of the age group, due to the high incidence of over-age students, with the net rate being about 94% (49% girls). Although this shows that almost all school age children attend the first four grades, the net enrollment rate in grades five and six drops to 57% (47% girls). Furthermore, about 30% of those completing grade six do not continue their education. The

high incidence of dropouts after grades 4 and 6 affect particularly the rural areas of the North, Northeast and the Alentejo region of the South where school facilities for grades 5-9 are frequently not available. Effective measures to redress this deficiency are awaiting the completion of the school mapping exercise and the development of a school construction program based upon the results of the exercise. To effectively implement such a construction program will require considerable strengthening of the design and management capabilities of the Ministry of Public Works. The proposed measures would form part of the government's efforts in current planning to raise the minimum school leaving age to 15, which would entail increasing enrollments in grades 7-9 from the current 210,000 to 450,000 by 1987. However, urgent actions will be necessary if this target is to be attained.

(b) Adult Education and Literacy Training

1.09 Educational opportunities are inadequate to supply the urgent needs of the 25-30% of the adults who are functionally illiterate. Although private and public industry conduct a range of evening courses for both literate and illiterate workers, much remains to be done. Except in a few factories, no basic education programs for adults are available in the rural areas where illiteracy is the highest. The 1979 law passed by the National Assembly (para. 1.05) aims at a rapid reduction in adult illiteracy.

(c) Teacher Training

1.10 If the objectives of expanding, upgrading and improving the internal efficiency and relevancy of the formal system (para. 1.04) are to be attained, significant reforms in the teacher training system must be made. The quality of primary education is seriously handicapped in that only a minimal number of the teachers in the basic cycle grades 1-6 have had more than 11 years of total education and none has had adequate preparation in teaching methodology. Furthermore, their pedagogical training was received at the immature age of about 16-17 years and due to the almost complete lack of modern teaching equipment and inadequate numbers of qualified teacher trainers, the quality of the training course (grades 10-11) has been poor. The extensive upgrading of the total primary teacher training system to the three-year post-secondary level being initiated under the first education project and to be completed under the proposed project will, through its pre-service and in-service courses, do much to improve the quality of the teaching force.

1.11 Secondary teacher training for both general and vocational teachers has been unsystematic and largely ad-hoc in nature. With the exception of some science teachers who have had a limited amount of pre-service pedagogical training in recent years, neither general nor vocational teachers have had such training, nor have adequate in-service training provisions been available to correct this deficiency. The steps being taken under the first education project and those proposed under the second project, in the restructuring and reorientation of training, will significantly increase the quality and help assure the required numbers of fully qualified secondary teachers of all types. Pre-service pedagogical training of secondary teachers is being upgraded to

formal university faculty status and will be required of all new teachers after the training programs become fully operational. In-service training of teachers will be reoriented from the occasional courses currently arranged by individual schools to a systematic program conducted by the faculties of education and coordinated by the Ministry of Education.

(d) Farmer Training

1.12 The current status of farmer training is seriously inadequate for the task of upgrading the production and management skills of farmers necessary to meet the government's medium and long-term agricultural production goals. The rural extension service currently operates only four farmer training centers and three demonstration farms training about 3,500 farmers annually. An additional 5,500 farmers are reached annually through on-the-farm visitations. These programs reach a total of only about 1% of all farmers. Government plans are to establish a minimum of 30 farmer training and demonstration centers by the late 1980's so as to train about 25,000 farmers annually and to reach indirectly another 100,000 or more per year.

(e) Meeting Manpower Training Needs

1.13 One of the more critical issues faced by the educational planning authorities is that of restructuring the education and training system to make it quantitatively and qualitatively more relevant to the country's manpower needs. While the inadequacy of basic data makes accurate estimates of technical manpower requirements difficult, the general dimensions of the shortfalls are indicated in the following table:

Estimate of Manpower Requirements and Supply for Engineers and
Agricultural and Industrial Technicians and Skilled Industrial Workers
1978-90

	Average Annual Requirements 1978-90	Annual Output of Supply Institutions					1985 Shortfall (Surplus)
		1977	1985				
			All Insti- tutions	of Which Bank Education Projects			
			I	II			
Engineer	1,300	1,700	1,700	0	800	(+400)	
Industrial Technicians	3,300	0	1,950	1,050	900	-1,350	
Agricultural Technicians	400	0	370	150	220	- 30	
Industrial Skills Training: Skilled Workers <u>/1</u>	45,000)						
Foremen and Supervisors	16,000)	12,000	14,000	0	2,800	-47,000 <u>/2</u>	
Semi-skilled Workers	23,400	4,500	4,500	420	0	-18,900 <u>/2</u>	

/1 The Portuguese definition of "skilled worker" includes those with the amount of shopwork provided in the diversified secondary schools. Available manpower supply and demand data in Portugal are based upon this definition.

/2 In 1977 there were about 68,100 formal apprentices in the larger firms, in courses ranging from one to three years from which these shortfalls can be partially filled.

Source: Ministry of Labor Manpower and Employment Data and Analysis - 1977, Ministry of Agriculture estimates, and mission calculations.

1.14 The quality of output is of equal importance with the quantitative needs indicated in the manpower table. During the unstable post-revolutionary period of 1974-77, university enrollments increased from about 48,000 to about 70,000, with a serious decrease in the quality of the graduates. Engineering graduates, already at an estimated 400 surplus in 1977, will increase by another 900 per year during 1980 and 1981 due to the large influx of students in 1975 and 1976. Enrollment controls introduced in 1978 will effectively reduce output to about 1,700 annually from 1984. This level of output will, however, continue to produce a surplus until the late 1980's when supply and demand are expected to balance. Other university enrollments had also increased excessively and are being effectively reduced to meet realistic

economic and social development needs. At the same time, a study included in the first education project revealed a serious need for extensive upgrading of instructional equipment to permit more modern and practically oriented instruction in the faculties of agriculture, engineering and science, and identified the priority needs in this respect. The proposed project would provide assistance in addressing this need. The government also recognizes that major deficiencies exist in the training of agricultural, industrial and health technicians. In the past, industrial technicians have either been trained abroad or have achieved their status informally and in many cases engineers who have been trained in excess of needs, are filling technician positions. It is estimated that some 15-20% of the stock of engineers are currently working as technicians. The imbalance which has arisen due to the oversupply of engineers and the total lack of training of industrial technicians is being redressed in the proposed project by the conversion of three engineering colleges into technician training institutes. This conversion would reduce the annual output of engineers by about 700 while expanding the annual supply of technicians by about 900. By 1984 the Bank assisted institutions would have an annual output of about 1,950 or about 60% of the average annual needs. The shortfall of about 1,350 industrial technicians would be partially met through the 400 annual surplus of engineers and those trained on-the-job or abroad. The requirements for agricultural technicians, mainly for agricultural research and the extension service, would be brought approximately into balance by 1985 when the output from the institutions included in the proposed project are expected to become available.

1.15 The diversified secondary school system, to be expanded under the proposed project, would provide most of the required skilled industrial workers in the less industrialized areas of the country, and would supplement the outputs of the Ministry of Labor training centers and the industrial apprenticeship programs in the other areas. The annual output of about 2,800 from the strong industrial options combined with the estimated 12,000 output from the industrial options in the 180 secondary technician schools currently being integrated into the diversified secondary system, would provide about 24% of the 61,000 skilled industrial workers required annually. The 4,500 annual output of the Ministry of Labor centers would provide about 20% of the annual requirements for semi-skilled workers. The annual shortfall of about 47,000 skilled workers and about 19,000 semi-skilled workers would be partially filled from the formal apprenticeship programs referred to in the footnote to the above table.

Educational Finance

1.16 From 1970 to 1977 education's share of central government expenditure has increased from 11% to about 15.4% and the proportion of GDP devoted to public education increased from 2% to 3.6% during the same period, largely reflecting increased enrollments and teachers' salaries. The total costs of public education have steadily increased from about Esc. 3.6 billion in 1971 to Esc. 23.3 billion or about 15.4% of the total public expenditures in 1977, but is expected to decline to about 14% by 1985 if the expected growth in GDP is attained.

1.17 The public sector educational improvements being implemented or proposed would require a recurrent expenditure of about Esc. 28.8 billion (US\$605 million) in 1985 in comparison to Esc. 20.2 billion (US\$424 million) in 1977. This would be an average annual increase of about 4.5%. The estimated annual capital costs of all levels of education in 1985 would be about Esc. 3.8 billion (US\$80 million). Assuming an average annual GDP growth rate of 5.5%, public capital and recurrent expenditures on education in 1985 would represent a reasonable 3.3% of projected GDP, and it is expected that the government would be able to provide this level of support.

Bank Strategy and Lending for Education

1.18 From the first Bank education mission to Portugal in August 1976 until the present, the education and training system has remained in a rather unsettled state, following the earlier political upheavals. The identification of project items suitable for Bank financing with assurance that they were indeed of highest priority became exceedingly difficult because of the changing system and the prospects of further major changes. The government intended to alter the basic structure of the formal education system and to revise the curricula of the preparatory and secondary schools, but decisions regarding the details of such changes had not yet been taken during the processing of the first education loan (Loan 1559). The need for other changes was recognized also, although a choice from among possible alternatives could not be made until the completion of analyses of data that had not yet been assembled.

1.19 In these circumstances, the following strategy was adopted: (i) within the dialogue occasioned by the educational lending operations, to assign highest priority to expanding the Bank's technical assistance input to help the government with some of the choices to be made and to concentrate on institution building (some of the results of these efforts are described in para. 4.01); (ii) as part of the above, to recommend and, in some instances, finance studies that would provide rational bases for the system's further development; and (iii) pending the completion of these studies, to finance urgently needed programs to improve the formal system and increase the supply of trained manpower, programs that are urgently needed irrespective of the results of the studies.

1.20 Within this context, the first education loan of US\$21 million equivalent, approved in June 1978, financed the construction and/or equipping of two new management training institutes, seven technician institutes, five vocational training centers, and nine teacher training institutes. The project also included a large technical assistance component (US\$4.1 million) to provide assistance in teacher training, curriculum development, planning, organization, and administration. The project was designed to improve the quality and scope of management training, introduce the concept of sub-professional, practical oriented technician training, provide pre-apprenticeship skills training to unemployed early school leavers in major urban areas, improve the quality of teacher training, and upgrade and rationalize the primary school teacher training system. Largely because of inadequate initiatives in design development, as a result of budgetary constraints which

resulted on a moratorium on hiring of new personnel and consultants, as well as some site problems, implementation of civil works is 9-15 months behind schedule. Recent actions and agreements, however, augur well for future satisfactory progress on civil works to complement satisfactory progress in all other aspects of the project.

1.21 We hope to extend the above mentioned strategy now through the processing of the proposed second project because major studies have still not yet been completed. Studies on the need for the development of an adult education system and the desired content and scope of skill re-training programs are being financed with bilateral assistance and are underway. Similarly, the major manpower planning study and the pre-investment study of para-medical training financed under the first education loan are still in process.

1.22 Parts of the proposed project--the vocational and science blocks and the various university faculties (except Education)--are based, however, respectively on the completion of curricula reforms at preparatory and secondary school levels and upon the findings of the first project's pre-investment study of the need to upgrade university science and engineering teaching. The balance of the project, as in the first project, responds to urgent needs for improvement in teacher training and for increased production of better trained manpower, which should be met without further delay and which will not be affected by the results of ongoing studies.

1.23 For the future, Bank strategy should be to continue to follow closely the progress of various studies and to provide advice and guidance where required and requested, without the commitment of another education project within any particular year. Bank staff will follow and advise on these studies, but will give special attention to two subjects of study that are of particular importance because their findings may affect the viability of Bank financed projects in agriculture and industry. The first concerns a number of studies financed by bilateral agencies and the Bank on how the agricultural services should be expanded and upgraded, and the corresponding manpower and training requirements. The second is a group of studies financed by bilateral agencies and the government on (a) how larger scale industry in Portugal should change its production practices to become more modern and competitive with the countries of the Common Market that it aspires to join and (b) the amount and types of retraining of the industrial labor force that will be necessary to make such change possible. When sufficient numbers of the various studies (especially the two above mentioned groups but also those on adult education and para-medical training) become available, consideration should be given to assisting in the implementation of their recommendations.

1.24 In the meantime, and while maintaining a dialogue with the government on the direction and progress of all studies and on the choices to be made in the further development of the education system, attention will also be directed towards identifying priority needs that might be met through external financing.

II. THE PROJECT

Introduction

2.01 The proposed project was prepared by the Portuguese government through preinvestment studies included in the first education project, a Bank reconnaissance/identification mission in July 1978 and preparation missions in October 1978 and January 1979. The project was appraised by Messrs. W. Hobbs (technical educator, mission leader), C. Germanacos (educational planner, consultant), J. Crosnier (agricultural educator) and H. Go (architect).

Objectives and Scope

2.02 The project would assist the government in implementing programs consistent with its educational development strategy (para 1.04) and would have the following main objectives: (a) expand post-secondary agricultural and industrial technician training; (b) assist in meeting the need for basic cycle and secondary teachers, including science and vocational; (c) assist in upgrading science teaching and in expanding vocational and diversified training at the secondary level; (d) expand and improve farmer training and the capabilities of the rural extension services; and (e) upgrade university science, engineering and agricultural instruction.

2.03 The project would comprise the following components:

Ministry and Item	Capacity			Output	
	Grades	Total	New	Total	New
<u>Ministry of Education</u>					
Construction, furniture, equipment; and related technical assistance:					
2 Agricultural Technician Training Institutes	13-15	720	720	220	220
32 Vocational and Science Blocks	7-12	36,640	36,640	5,900	5,900
Equipment and technical assistance:					
3 Engineering Technician Training Institutes	13-15	3,400	3,400	900	900
11 Vocational and Science Blocks	7-12	12,500	12,500	2,100	2,100
7 Primary Teacher Training Institutes	13-15	2,220		600	
1 Faculty of Education	16-17, 18	500	500	450	450
1 Faculty of Agriculture	13-17	750		120	
1 Faculty of Veterinary Medicine	13-17	350		60	
1 Faculty of Engineering	13-17	6,000		800	
1 Faculty of Science	13-17	1,600		280	
<u>Ministry of Agriculture and Fisheries</u>					
Construction, furniture, equipment and related technical assistance:					
7 Farmer Training Centers	Adult	240	240)	10,000	10,000
3 Demonstration Centers	Adult	180	120)		
2 Mobile Training Units	Adult	30	30	600	600
Equipment and technical assistance:					
Nutrition Education Program	Adult				
Agricultural Information Center	1-12				
Total Training places		65,130	54,150	22,030	20,170
<u>Agricultural Technician Training Institutes</u>					

2.04 To help provide the numbers of medium level technicians required by the agricultural extension, research and farmer associations services, currently under expansion by the government, the proposed project would provide financing of construction, furniture, equipment and technical assistance for new agricultural technician training institutes (grades 13-15). The institutes would have a combined enrollment of 720 (30% women), an annual output of about 220 or about 55% of the average annual demand and, when combined with the 150 annual output of agricultural technicians from institutes under the first project, would provide about 93% of average annual requirements during the period of 1978-90 (paras. 1.13 and 1.14). Annual outputs would include about 55 each from programs of crop production, animal production, rural

engineering and home economics. The new home economics program, as well as the enrollment of women in other programs, reflects the growing recognition of the increasingly important role of women in agriculture. The home economics program would include training in nutrition, poultry and vegetables production and preservation, clothing and child care, and its graduates would be employed mainly by the rural extension service.

2.05 The institutes would be located in the East Central and North Eastern regions of the country where major governmental emphasis is being placed upon agricultural development. The institutes would have attached farms of sufficient size to provide the necessary practical field experiences for students, and would also provide office facilities for 3-4 agricultural and home economics extension specialists and laboratory and workshop facilities for farmer training activities jointly conducted by the extension specialists and institute faculty. The sites and farms have been found acceptable by the mission and acquisition is expected to be completed by September 1979.

2.06 The plan of study would comprise two and one half years of study, including about 75% technical theory and practice, and one-half year of on-the-job internships. Detailed curricula and equipment lists are in the process of being prepared by qualified agriculturalists. To assure the continuing relevance of the curricula, field experiences and the placement of graduates, an advisory committee consisting of agricultural extension specialists and representatives from rural credit institutions, farmer associations and the agricultural service industry would be established by the opening date of the institutes. In recognition of the desirability of such advisory committees, the government decree establishing the post-secondary technician training system also mandates the establishment of such committees.

2.07 To assist in evaluation and to assure the continuing relevance of training programs through a systematic feedback of information, the government has provided an assurance that a follow-up system to trace graduate placement and job performance would be developed and operational by the time the first classes graduate.

2.08 No difficulty is expected in recruiting the approximately 62 instructors required from among the existing oversupply of university graduates in science, agriculture and engineering and from selected personnel from the Ministry of Agriculture's rural extension service on a part-time basis. As nearly all would not have received pre-service teacher training, the government intends to provide in-service pedagogical training to these staff. The government has provided an assurance that a detailed plan and schedule for in-service training would be prepared and sent to the Bank for review and comment within six months of the Loan Agreement. About half of the 14 rural engineers, the 8 home economists, and the 8 senior instructors for the crop and livestock production programs would be sent abroad for internships or study program of 4-18 months.

Engineering Technician Training Institutes

2.09 To meet the urgent need for engineering technicians (paras. 1.13 and 1.14) and to expand further the technician training system initiated under the

first education project, the project would provide financing for equipment and technical assistance for the conversion of three engineering colleges into technician training institutes (grades 13-15). Two of the institutes with enrollments of 1,400 and 1,200 respectively are located in the industrial sections of Lisbon and Porto and the third, with an enrollment of about 800, is in the country's third largest city of Coimbra. The combined annual output of about 900 graduates (20% women) would correspond to about 27% of the 1978-90 average annual requirements for industrial technicians; and, when combined with the annual output of about 1,050 industrial technicians from institutes under the first education project, would provide about 60% of the average annual requirements during the same period.

2.10 The plan provides for two and one-half years of study followed by one-half year of internship in industry, and would include programs in electricity, electronics, chemical technology, mechanical production, civil construction, design drafting and data processing. To assure a proper balance of theory and practice, the students' instructional day would be about equally divided among general subjects (65% mathematics and science), technical theory and technical practice. Curricula, course syllabi and equipment lists are being developed with bilateral assistance and assistance from industry.

2.11 To help assure the continuing relevance of the instructional program to the needs of industry, a government decree requires the development of an appropriate industrial advisory committee by the opening date of the institutes. The government has provided an assurance that a follow-up system to trace graduate placement and job performance would be developed and operational by the time the first classes graduate.

2.12 The approximately 300 instructors required would be recruited from among the existing faculty, and, on a part-time basis, from industry. The government anticipates no problem in this respect as salaries and terms of employment are adequately competitive. The senior instructors in each of the programs of study would intern abroad for a period of about four months in similar institutions under the technical assistance program included within this project.

Vocational, Science and Practical Studies in Diversified Schools

2.13 The project would help initiate the government's policy of restructuring and reorienting education and training at the secondary level towards economic development needs. At the lower secondary level (grades 7-9) industrial arts and craft subjects (6 periods per week) will be provided for all students in grades 7 and 8, with an option given in grade 9 of either pre-vocational industrial arts or commercial subjects (4 periods per week). These practical programs are intended, particularly in the last year, to provide a strong orientation towards the skill training options being introduced at the upper secondary level. At that level, which will be extended from 2 to 3 years, new practical options--industrial, agricultural and commercial--will be introduced to complement the existing options of science/maths and humanities. In addition the present theoretical teaching of science would be given a more practical bias. All students will be required to take a minimum of four

periods per week of practical subjects (which would include a requirement of science/math for those taking the humanities option), while job-oriented students, or those seeking a more technical bias to their education, will take 10 periods per week of vocational subjects. Students taking the industrial option will have, in addition to their industrial subjects, 8 hours per week of maths and science, with a further 12 periods per week of general subjects. To assist in attracting students into this option, the best graduating students will receive preferential treatment in admissions to the post-secondary technician training programs. The other graduating students will enter industry as skilled workers, with the expectation of their progressing to foremen/supervisors after appropriate experience.

2.14 The government intends for purpose of this transformation of the secondary school system to combine the resources of the existing academic and technical schools so that the academic school students could obtain the desired hours of shopwork and improved science laboratory instruction. Academic secondary schools would be appropriately chosen as satellites to a particular secondary technician school so as to maintain easy commuting distances between the academic and technician schools. Unfortunately, all of the secondary technician schools are located in urban areas, making the extension of the proposed system to the rural areas impossible without the establishment of suitable workshop and science laboratories in rural secondary schools that could then serve as the centers of such networks of academic secondary schools.

2.15 This project items would assist in the implementation of the proposed reform through the construction and/or equipping of science laboratories, vocational and other practical facilities for 43 secondary schools recently built or under construction, the majority of which are located in rural towns in the poorer regions of the country. At 32 of the schools new construction would be required for which financing is proposed under the project. In the remaining schools, appropriately sized spaces are available which will be adapted by the government to meet the requirements of the new curricula. Total enrollments (grades 7-12) would be about 49,140, all benefiting from the resources to be provided, but the actual number of science and vocational places to be constructed and/or equipped at the upper secondary level would be 6,200 and 15,130 (including 6,100 commercial) respectively. In addition, 3,500 places would be equipped at the lower secondary level for pre-vocational practical studies. The annual outputs from grade 12 would be about 8,000. The vocational options would produce about 4,700 skilled workers annually, of which about 2,800 would be in the industrial field.

2.16 The head instructors required for the vocational and prevocational subjects in the project schools would be selected from among the 3,300 experienced and qualified instructors in the 180 existing secondary technical schools which are now being integrated, on a phased basis, with nearby academic secondary schools to form additional non-project diversified schools. It is not expected that difficulties would be encountered in recruiting technically and pedagogically qualified teachers for the senior positions in the other subject areas. Technically qualified teachers are expected to be available in adequate numbers for the junior positions, but in-service pedagogical training would be necessary for many of them. The government has provided

an assurance that a detailed plan and schedule for in-service training would be prepared and sent to the Bank for its review and comment within six months of the Loan Agreement. For the medium and longer term, the secondary teacher training center in the first education project and the proposed faculty of education in this project would provide both the pre-service and in-service teacher training for these schools.

2.17 The vocational curricula and course syllabi are in the process of being adapted from those in the existing vocational secondary schools. Those for the science subjects are being upgraded to reflect the improved practical applications of scientific theory made possible by appropriate equipped laboratories. In order to evaluate the effects of the diversified curricula upon the graduates' career paths, the government has provided an assurance that a study to trace their entrance into further studies or job placement, and subsequent performance in each, would be developed and operational by the time the first classes graduate.

Primary Teacher Training Institutes

2.18 The project would assist the government in completing implementation of its rationalization plan for basic cycle teacher training developed as a result of Bank-Government dialogue. Under the plan the present network of 21 teacher training schools will be consolidated into 15 institutions, each serving a geographical region and with the overall intake reduced from 2,000 to about 1,400 by 1981 to reflect the reduced teacher needs. The curriculum, which has been at the upper secondary level (grades 10-11) and emphasized subject content with only a limited provision for teaching methodology, has as a result of the first education project, been upgraded to the post-secondary level (grades 13-15) and provides a balance among subject content, methodology and practice teaching. To assist in upgrading the quality of the existing teaching force, one-year full-time in-service programs and short ad-hoc courses would also be provided.

2.19 The first project provided for the construction and/or equipping of eight of the upgraded teacher training institutes. The proposed project would finance equipment for the conversion of the remaining seven institutions in the regional network into post-secondary institutes having the new curricula and training methodology. The minor building renovations required would be financed by the government. The capacities of the institutes vary from 240 to 420 places, depending upon location, and are considered adequate to meet the needs of each region being served. They would have a combined enrollment of about 2,220 (70% women) with annual outputs of about 600 from pre-service courses and about 420 from the full-time in-service courses. The short ad-hoc courses would cater to the needs of about 3,000 additional teachers each year.

2.20 Arrangements are underway, with technical assistance under the first project, related to the management requirements and curriculum development for the upgraded teacher training institutions. The required fellowship training for staff upgrading has also been provided for under the first project and through bilateral assistance.

Faculty of Education

2.21 The project would finance equipment and technical assistance for the establishment of the first full faculty of education in the Portuguese higher education system and would expand on the provision for pre-service teacher training in the University of Aveiro Teacher Training Center included under the first education project.

2.22 The proposed Faculty of Education would provide one year of pre-service pedagogical studies for fourth year students of the various faculties of the University of Lisbon and would formally supervise the fifth (internship) year. A licenciatura degree would be awarded upon successful completion of the internship year. The faculty of education would also provide the same two-year pedagogical program for graduates of industrial, agricultural and commercial technician training institutes, and would also award them the licenciatura degree. Additionally, both part-time and full-time in-service courses and out-reach programs would be provided and could lead to the award of the masters' degree in education. These graduate level courses would also be available to provide needed upgrading of staff qualifications in the primary teacher training institutes. The faculty would in due course broaden its program to include graduate studies to train school administrators, remedial and guidance teachers and school supervisors; and to undertake applied educational research.

2.23 The faculty would operate in existing buildings which are adequate for the purpose and which would be fully equipped under the project. It would cater to a total of about 500 teacher trainees annually, including about 30 industrial, 30 commercial, 15 agricultural, 150 science, 150 humanities and languages, 25 full-time graduate students and 100 in-service students. Model teaching laboratories, including specialized ones for vocational teacher trainees, would be provided and fully equipped to assure that training would be relevant to the curricula and equipment now being made available in the secondary schools. About 45 fully qualified teacher trainers would be required. About one-third would be transferred from the existing department of education of the Faculty of Science and the remainder would be recruited from among experienced secondary teachers and no difficulty is expected in this regard. To help assure a properly qualified cadre of teacher trainers, about 34 man-years of fellowship training abroad (para 2.34) is included under the project. Teacher trainers would be sent abroad under a program (Annex 1, Schedule 1.1) which would enable them to return to the faculty by October 1981, the scheduled opening date of the faculty.

2.24 In view of the experience gained with similar type of programs under the first project, adequate expertise exists in Portugal for the development of curricula and related equipment lists for this project item. Satisfactory arrangements in this respect are already proceeding.

Improvement of University Instruction

2.25 In view of Portugal's proposed entrance into the European Common Market, and the high priority placed upon improvements in its industrial and

agricultural sectors, it is particularly urgent that current deficiencies in university science, engineering and agriculture instruction be corrected. The project would finance undergraduate instructional equipment and about five man-years of fellowship training required for the extensive upgrading necessary to permit more modern and practically oriented instruction in the Faculties of Agriculture, Veterinary Medicine and Engineering of the Technical University of Lisbon and the Faculty of Science of the University of Lisbon. The additional equipment and technical assistance proposed would permit the upgrading of curricula and course syllabi to reflect the improved practical applications of technical theory made possible by appropriately equipped laboratories. A high percentage of the professors hold recent advanced degrees from universities abroad and have the ability and motivation to carry out the improvements that would be made possible by this project. The preliminary equipment lists and specifications and the required curriculum revisions are complete and are satisfactory. The details of the improved course syllabi for the laboratory exercises will be completed by the time of equipment installation.

2.26 Each of these faculties, in accordance with a 1977 Government decree, are reducing their enrollments to more appropriately fit available space and manpower needs. Enrollments, including evening classes, will be limited to 750 in agriculture, 350 in veterinary medicine, 6,000 in engineering and 1,600 in science representing about a 30% reduction over current enrollments. Annual outputs would be about 120, 60, 800 and 280 respectively.

Farmer Training and Demonstration Centers

2.27 In response to the high priority the government currently places upon improving the productive capacity of the agricultural sector, and in recognition of the highly important and expanded role of the rural extension services, the project would finance construction, furniture, equipment and technical assistance for seven regional farmer training and extension centers and three demonstration farms. The demonstration farms and the farmer training and extension centers, distributed throughout the seven agricultural production regions of the country, would assist in upgrading the productive and farm management capabilities of about 10,000 farmers (25% women) per year through a sequential series of both day and night classes, field demonstrations, and agricultural services. Courses would range in length from one day to six weeks.

2.28 In addition to accommodations for classes, group meetings and field demonstrations, the centers and the demonstration farms would provide offices for the local extension personnel, soils, fertilizer and seeds laboratories, a home economics nutrition/foods and clothing laboratory, a farm machinery workshop and an animal production unit. Additionally, a large mobile unit for training farmers in the preventive maintenance of farm tractors would be attached to one of the farmer training centers located in the Alentajo Region of the South and one in the Beira Litoral Region in the North. About 600 farmers per year would be reached through maintenance courses of about two weeks in length. The existing farmer training curricula would be upgraded to reflect the new methodologies and

course content made possible by the new accommodations and equipment and would cater to the specific needs of farmers in each of the agricultural regions.

2.29 Except for the home economists, the professional staff required for these centers are current employees of the rural extension service who have been extensively upgraded during the past 18 months through bilateral assistance. The initially required technician level personnel would be recruited from the outputs of the agricultural technician training institutes under the first education project and later replacements from those under the second education project. As bilateral assistance has not included the training of trainers or agricultural cooperative specialists, about 17 man-months of consultancies for this purpose, as well as about 57 man-months of fellowships abroad, would be included within this project.

Nutrition Education Program

2.30 During the past three years the General Directorate of Rural Extension has been operating a pilot nutrition education program in close liaison with the Ministries of Education and Social Affairs. The proposed project would provide financing of educational and transport equipment and related technical assistance to upgrade the equipment and staff, respectively, of the National Nutrition Education Program, its four existing field teams and to equip 14 additional field teams. The teams consist of a nutritionist, a home economist and a horticultural production specialist.

2.31 The teams provide instruction to school teachers in the preparation and use of nutrition education materials for integration into the school curriculum, and demonstrations to students and rural families on balancing food diets using local products and improved methods of food production and preservation at family and village levels. The objectives of the program are to: (i) upgrade the nutrition education capability of about 20,000 primary teachers (50% of total) in five years; and (ii) involve annually about 2,000 rural adults (50% women) and 5,000 school age rural students (50% girls) in improved programs of food production and preservation designed to reduce food deficiencies, improve nutrition and decrease imports. About four man-months of specialist assistance and 24 man-months of short-term fellowships would be provided under the project to upgrade the capabilities of the central staff.

Agricultural Information Center

2.32 As a means of correcting the seriously inadequate system of preparation of printed agricultural education materials, the project would finance audio-visual and printing equipment in the amount of about US\$0.14 million (including contingencies) and about 18 man-months of fellowships training to establish an agricultural information center, located in the Ministry headquarters in Lisbon, for the preparation and printing of educational materials. These materials including audio-visual and printed would be prepared by ministry subject-matter specialists and illustrators and would annually provide vital support to some 18,000 participants in the farmer

training, demonstration farm and nutrition education programs, about 1,200 enrollments in the agricultural technician training and secondary vocational agriculture programs of the project, and to 100,000 or more farmers not participating in the above programs.

Technical Assistance

2.33 The expected contribution of the project to institution building is believed to be of equal importance with the qualitative and quantitative outputs of the project institutions. Consequently, a substantial technical assistance component has been included to help achieve this objective (Annex 1, Schedule 1.1). In summary, about 25 consultants would be employed for a total of about six and one-half man-years to assist in (a) institutional organization and operation of the agricultural technician training institutes; (b) curriculum development for the industrial technician training programs; and (c) upgrading rural extension and nutrition programs, farmer training methodology and agricultural audio-visual materials production. Additionally, fellowships for about 82 man-years of teaching and administrative internships of formal studies abroad would be provided for about 142 selected faculty and staff of the project institutions and about two and one-half man-years for project administration personnel.

2.34 Because of the number of consultants and fellowships, the technical assistance program will require considerable skill in its management, timely recruitment of consultants and placement of fellowship recipients in appropriate institutions abroad. Consequently, the government has provided an assurance that the recruitment of consultant on terms and conditions satisfactory to the Borrower and the Bank, and the arrangements for fellowship training would be carried out substantially as scheduled (Annex 1, Schedule 1.1).

III. PROJECT COST, FINANCING, IMPLEMENTATION AND DISBURSEMENTS

Cost of the Project

3.01 Summary of Project Cost. The total cost of the project is estimated at Esc. 2,809.6 million or US\$59.0 million equivalent. The estimated total cost and foreign exchange components by main project items are summarized below:

	Esc. Millions			US\$ Millions			% of Baseline Cost
	Local	Foreign	Total	Local	Foreign	Total	
2 Agricultural Technician Train- ing Institutes	172.05	123.52	295.57	3.62	2.59	6.21	14.5
3 Engineering Technician Train- ing Institutes	20.38	183.43	203.81	0.43	3.85	4.28	10.0
43 Vocational/ Science Blocks	303.95	568.29	872.24	6.39	11.93	18.32	42.8
7 Primary Teacher Training Insti- tutes	5.24	47.14	52.38	0.11	0.99	1.10	2.6
1 Faculty of Education	2.10	18.85	20.95	0.04	0.40	0.44	1.0
1 Faculty of Agriculture	3.00	27.00	30.00	0.06	0.57	0.63	1.5
1 Faculty of Vet. Medicine	3.00	27.00	30.00	0.06	0.57	0.63	1.5
1 Faculty of Engineering	5.14	46.29	51.43	0.11	0.97	1.08	2.5
1 Faculty of Science	8.57	77.14	85.71	0.18	1.62	1.80	4.2
7 Farmer Training Centers	84.00	87.46	171.46	1.76	1.84	3.60	8.4
3 Demonstration Centers	27.71	29.43	57.14	0.58	0.62	1.20	2.8
2 Mobile Training Units	0.43	3.86	4.29	0.01	0.08	0.09	0.2
1 Agricultural Informa- tion Center	0.48	4.28	4.76	0.01	0.09	0.10	0.2
1 Nutrition Education Program	4.76	42.86	47.62	0.10	0.90	1.00	2.4
Technical Assistance:)							
Specialists and)	22.00	88.00	110.00	0.46	1.85	2.31	5.4
Fellowships)							
Baseline Cost	662.81	1374.55	2037.36	13.92	28.87	42.79	100.0
Contingencies							
Physical Unforeseen	65.18	133.06	198.24	1.37	2.79	4.16	9.7
Price Increase	176.75	397.25	574.00	3.71	8.34	12.05	28.2
Subtotal	241.93	530.31	772.24	5.08	11.13	16.21	37.9
TOTAL PROJECT COST	904.74	1904.86	2809.60	19.00	40.00	59.00	

3.02 A breakdown of estimated project costs into local and foreign cost elements by categories of expenditure is summarized as follows:

	Esc. Millions			US\$ Millions			% of Baseline Cost
	Local	Foreign	Total	Local	Foreign	Total	
Construction							
Academic & Communal							
Facilities	445.89	191.09	636.98	9.36	4.02	13.38	31.3
Boarding	22.87	9.80	32.67	0.49	0.20	0.69	1.6
Staff Housing	26.66	11.43	38.09	0.56	0.24	0.80	1.9
Prof. Services	<u>11.43</u>	<u>0.00</u>	<u>11.43</u>	<u>0.24</u>	<u>0.00</u>	<u>0.24</u>	<u>0.5</u>
Subtotal	506.85	212.32	719.17	10.65	4.46	15.11	35.3
Furniture	15.33	6.57	21.90	0.32	0.14	0.46	1.1
Equipment	<u>118.63</u>	<u>1,067.66</u>	<u>1,186.29</u>	<u>2.49</u>	<u>22.42</u>	<u>24.91</u>	<u>58.2</u>
Subtotal	133.96	1,074.23	1,208.19	2.81	22.56	25.37	59.3
Technical Assistance							
Fellowships	16.67	66.67	83.34	0.35	1.40	1.75	4.1
Experts	<u>5.33</u>	<u>21.33</u>	<u>26.66</u>	<u>0.11</u>	<u>0.45</u>	<u>0.56</u>	<u>1.3</u>
Subtotal	22.00	88.00	110.00	0.46	1.85	2.31	5.4
Baseline Costs	662.81	1,374.55	2,037.36	13.92	28.87	42.79	100.0
Contingencies	<u>241.93</u>	<u>530.31</u>	<u>772.24</u>	<u>5.08</u>	<u>11.13</u>	<u>16.21</u>	<u>37.9</u>
TOTAL PROJECT COST	<u>904.74</u>	<u>1,904.86</u>	<u>2,809.60</u>	<u>19.00</u>	<u>40.00</u>	<u>59.00</u>	

3.03 Basis of Cost Estimates. Estimated civil works costs for the proposed project are based on unit prices derived from current contracts and detailed estimates of other projects of similar character by the Ministries of Public Works and Education. Furniture and equipment costs are based on current CIF unit prices and adjusted upward to include local transportation and installation. Cost estimates do not include any identifiable import duties and taxes. In line with recent experience, the estimate of technical assistance is based upon (i) average costs per man-month of about US\$6,900 for experts (consisting of fees and per diem) and about US\$1,600 for fellowships of which 80% would be foreign costs, and (ii) average travel costs to and from home office or study base abroad of about US\$750 per individual (80% foreign exchange).

3.04 Contingency Allowance. The project cost includes a contingency allowance for unforeseen physical conditions equal to 10% of the estimated

baseline cost of civil works, professional fees, furniture and equipment and 5% of the estimated cost of technical assistance. It also includes price escalation contingencies ^{1/} calculated for the period beginning October 1, 1979 and in accordance with an agreed schedule of implementation (Annex 1, Schedules 1.2). Prices are expected to increase during the project implementation period by a total of about 23.7% for civil works, 27.6% for furniture, 27.6% for equipment, 23.7% for architects' fees, 15.8% for fellowships and 21.0% for specialists. Accordingly, aggregated price increases are estimated at about 25.7% of baseline cost plus physical contingencies. Total contingencies are estimated to be 37.9% of the baseline cost.

3.05 Foreign Exchange Component. The estimated foreign exchange component is US\$40.0 million equivalent or about 67.8% of the total project cost. The calculations of the foreign exchange component are based on the assumption that (a) all civil works and related professional services will be awarded to local firms, (b) 100% of the furniture will be awarded to local suppliers, and (c) based upon experience with the first education project, all equipment is expected to be directly imported. The resulting foreign exchange content of each category of expenditure is as follows: (i) civil works, 30%, (ii) furniture, 30%; (iii) equipment, 90%; (iv) consultant architects' fees, 0%; and (v) technical assistance, 80%.

Project Financing

3.06 The proposed loan of US\$40.0 million would finance 67.8% of the total costs and 100% of the estimated foreign exchange cost of the project. The balance of the total project costs would be financed by the government. The proposed financial plan is summarized below:

^{1/} Based on anticipated annual price increases of (i) 10% for 1979, 9% for 1980, 8% for 1981 and 7% for 1982-84 for civil works; (ii) 10% for 1979, 14% for 1980, 12% for 1981, 10% for 1982 and 8% for 1982-84 for equipment and furniture (based on a study of escalation in educational equipment prices over the past three years); and (iii) 7% for 1979, 10% for 1980, 9% for 1981, 8% for 1982 and 7% for 1983-84 for technical assistance. As a result of a government policy in force since early 1978 of automatic exchange rate adjustments of the Escudo to the US\$, the higher rate of local price increases is reduced to an equivalent rate in terms of US\$ by re-evaluation of the Escudos. Therefore, the same rate of increase has been applied to both foreign and local cost estimates.

Financial Plan by Category of Expenditure
(in US\$ Million)

	<u>Government</u>		<u>IBRD</u>		<u>Total Amount</u>
	<u>Amount</u>	<u>%</u>	<u>Amount</u>	<u>%</u>	
Civil Works	10.41	70.0	4.46	30.0	14.87
Furniture	0.32	70.0	0.14	30.0	0.46
Equipment	2.49	10.0	22.42	90.0	24.91
Professional Fees	0.24	100.0	0.00	0.0	0.24
Technical Assistance	<u>0.46</u>	<u>20.0</u>	<u>1.85</u>	<u>80.0</u>	<u>2.31</u>
Baseline Cost	<u>13.92</u>	<u>32.5</u>	<u>28.87</u>	<u>67.5</u>	<u>42.79</u>
Contingencies					
Physical	1.37	32.9	2.79	67.1	4.16
Price Increase	<u>3.71</u>	<u>30.8</u>	<u>8.34</u>	<u>69.2</u>	<u>12.05</u>
Total Contingencies	5.08	31.3	11.13	68.7	16.21
Total Project Cost	<u>19.00</u>	<u>32.2</u>	<u>40.00</u>	<u>67.8</u>	<u>59.00</u>

Recurrent Costs

3.07 When fully operational in 1985, the Ministry of Education (ME) project institutions are estimated to require Esc. 870 million annually in recurrent costs, corresponding to about 3% of projected public recurrent expenditures on education in 1985. However, as most of the institutions in the project are existing ones, the marginal recurrent costs would be about Esc. 530 million or less than 2% of the projected 1985 recurrent costs. Marginal recurrent costs of about Esc. 22.4 million for the rural extension programs, not included above, will be met by the Ministry of Agriculture and Fisheries. In view of the high priority of the proposed project and the Government's very strong commitment, it is expected that these very modest additional expenditures will be fully met.

Implementation

3.08 The construction, furnishing and equipping of all schools is scheduled to be completed by June 1983 while the technical assistance component would be completed by June 1984 (Annex 1, Schedules 1.1 and 1.2). To allow sufficient time for submission of the final withdrawal applications, the Closing Date would be December 31, 1984.

3.09 The Ministry of Education component would be implemented through a Project Implementation Coordination Unit working with the technical secretariats of the General Directorate of Higher Education which is successfully implementing the first education project, and the General Directorate of

School Facilities which has had experience with bilateral financed projects. The Ministry of Agriculture and Fisheries has organized a project implementation unit under the General Directorate of Rural Extension. Both ministries have formally appointed the coordinators, architects and equipment procurement officers; accountants and such clerical staff as may be required will be appointed by February 1980.

3.10 Preliminary drawings for the secondary vocational blocks have been submitted to the Bank for review and comments and predesign studies for the ME agricultural training institutes and the MAP farmer training centers had already been initiated at the time of appraisal. The staff architects of the ME and the Ministry of Housing and Public Works (MHOP) would be responsible for the design and preparation of final construction drawings for the secondary vocational blocks. The consultant architects for the two agricultural technician training institutes will be appointed by ME by the end of December 1979 and preliminary drawings are expected to be completed and forwarded to the Bank for review and comment by March 1980. The minor renovations required in the basic cycle teacher training institutes are currently under study by ME architects. The staff architects of MAP are also expected to have completed preliminary drawings for their project items by March 1980.

3.11 Suitable sites for the farmer training centers and demonstration farms are already acquired and sites for the agricultural technician training institutes have been found acceptable to the mission and are in the process of being acquired. Acquisition is expected to be completed by January 1980. The vocational blocks will be built adjacent to existing secondary schools with adequate space on their present sites to accommodate the planned additions.

3.12 The curricula and equipment lists for the basic cycle teacher training institutes, agricultural technician training institutes, industrial technician institutes, and the faculty of education are being prepared drawing on the experience gained in developing similar type curricula and equipment lists under the First Education Project. Preliminary equipment lists for the improvement of university teaching have been reviewed by the mission and are currently being revised by the respective faculties, and the required curricula and course syllabi modifications will be completed by the completion of equipment installation. The curricula and preliminary equipment lists for the science and vocational blocks have been completed and submitted to the Bank for review and comment. The Ministry of Agriculture equipment lists are quite simple and the preliminary lists are expected to be completed without difficulty by January 1980.

3.13 Procurement. Civil works contracts for the two Agricultural Technician Training Institutes (amounting to US\$2.9 million each, including contingencies) would be awarded on the basis of international competitive bidding. Civil works contracts for the proposed vocational/science block additions (averaging US\$320,000 each and amounting in total to US\$10.4 million including contingencies) to the secondary schools, now under construction or about to commence construction, would be negotiated with the original contractors with prior Bank approval through extensions to such contracts, which

provide that additional construction would be carried out during the term of the contract on the basis of the initial unit cost. The original contracts for the construction of the secondary schools (funded by the government) were awarded following local competitive bidding open to foreign bidders, but for which no foreign bids were received. In view of the dispersed nature of the works and the relatively small cost of individual items (averaging US\$400,000 including contingencies), civil works contracts for the remaining project items (amounting to US\$4.1 million including contingencies) would be awarded on the basis of local competitive bidding under normal government procedures, which are satisfactory to the Bank and do not exclude foreign bidders. The local construction industry is well developed and competitive and it is expected that all contracts would be awarded to local firms. As the furniture manufacturing industry is also well developed and competitive, it is expected that 100% of furniture contracts would be awarded to local suppliers. Detailed lists and specifications of furniture and equipment to be financed under the loan would be presented to the Bank for review and approval prior to procurement. Furniture and equipment items (amounting to US\$35.6 million including contingencies) would be grouped to the extent possible in large packages to permit bulk procurement. Contracts for furniture and equipment in excess of US\$100,000 would be awarded in accordance with the Bank Group's guidelines for ICB. Small items or groups of items estimated to cost less than the above figure or items of specialized nature for which ICB would not be practical, and items which must be compatible with other equipment procured under ICB, would be procured under normal Government procedures which are satisfactory to the Bank and would include to the extent possible quotations from at least three manufacturers or suppliers; the total value of furniture and equipment so procured would not exceed US\$5.0 million equivalent which would represent about 14% of estimated furniture and equipment cost including contingency allowances. For the purpose of comparing foreign and local bids under ICB, local manufacturers of furniture and equipment would be allowed a margin of preference equal to the existing rate of customs duties applicable to competing imports or 15% of CIF price, whichever is lower.

3.14 Disbursements. Disbursements (Annex 1, Schedule 1.3) would be on the basis of:

- (i) 30% of total expenditures of civil works;
- (ii) Furniture and equipment: 100% of foreign expenditures and of local expenditures ex-factory; 80% of local expenditures of such imported items procured locally; and
- (iii) 100% of foreign expenditures for fellowships and expatriate consultants; and 80% of local expenditures for local consultants.

3.15 These percentages would be adjusted as required, to assure continued financing for each category for the implementation period. Retroactive financing for civil works contracts to be let in January 1980 is proposed in an amount not to exceed US\$200,000 for expenditures incurred after January 1, 1980.

IV. BENEFITS AND RISKS

Benefits

4.01 The Bank's involvement in Portugal's education system began at a propitious time, when the system was in a state of flux after the recent political upheavals. The Bank staff found the education authorities to be progressive, dedicated to the reform and upgrading of the education system, and responsive to the views and suggestions of the Bank's staff. In this climate, the Bank's contribution to the development of the Portuguese educational system has been disproportionately great in comparison with the combined amount of Bank financing provided in the first educational loan and proposed in this loan. During the course of project identification, preparation, and appraisal of these two projects, many government decisions were taken that will profoundly alter the education system for the better. In a sense, therefore, many of the benefits of the proposed project, particularly those related to the institution building, have already been realized. The more important of these decisions are the following:

- The rationalization of the network of excessive numbers of small primary school teacher training institutions into fewer, but more efficient and higher quality institutions. This was initiated under the first education loan and would be completed with the financing requested for seven such institutes under this project.
- Agreement to establish the first faculty of education to provide more systematic and improved quality pre-service training of secondary school teachers. This will be accomplished with the assistance of this project.
- The establishment under law of committees with appropriate representation from industry and agriculture to advise continuously on the relevance of curricula in the engineering technician institutes and the agricultural technician institutes, respectively. These are expected to become operative in 1981.
- The creation of a strong General Directorate in charge of post-secondary non-university education.
- The decision to reduce degree engineering enrollments and, with the help of this project, to transform three engineering universities into technician training institutions.
- Restructuring and reorientation of secondary education to introduce practical studies for all students and to provide students in previously all vocational secondary schools with more academic schooling. This project would help to initiate this transformation by financing the construction and equipping of science laboratories and vocational workshops in 31 secondary schools.

Other benefits that will accrue upon completion of the project are:

- expansion and upgrading of rural extension service and farmer training;
- an additional annual output of about 900 industrial technicians (20% women), 220 agricultural technicians (30% women), 1,900 commercial and 2,800 industrial skilled workers, and increased level of skills for about 10,000 adult farmers (25% women); and
- improvements in the quality of university graduates in the priority areas of agriculture, engineering, science and secondary teacher education.

Risks

4.02 No undue risks are anticipated with this project. This is due principally to the extent of the discussions that have taken place between the Portuguese education authorities and Bank staff over the past three years and the steps that the authorities have consequently already taken; some of these are described above. Others include (i) the completion of curricula revisions satisfactory to the Bank and commendable progress in revision of other curricula after comment by the Bank, (ii) advanced state of preparation of architectural designs and equipment and furniture lists, (iii) agreement on project implementation units and their staffing, with appointment of project coordinators, architects and equipment officers already made, and (iv) the appointment of additional staff to manage the large technical assistance component of the project to ensure timely recruitment of specialists and placement of trainees in appropriate institutions abroad. A risk remains that budgetary procedures for the release of counterpart funds and the freeze on hiring of new personnel (architects, accountants, etc.) could delay implementation of some items. The understandings reached on project implementation staffing, however, and the required budgetary allocations for this purpose and to meet overall project costs, should reduce this risk to a minimum.

Key Implementation Dates

4.03 Expected completion dates are listed in the following table for the listed critical activities in project implementation. Such dates are achievable with the proposed project management arrangements and will serve as a basis for project implementation monitoring. The government has provided an assurance that it intends to implement the project in accordance with Schedules 1.1 and 1.2 of Annex 1.

List of Critical Activities

	<u>New /1</u> <u>Construction</u>		Renovations	Furniture Equipment Only
	A	B		
<u>Civil Works</u>				
Completion of preliminary designs	3-80	3-80	-	-
Completion of final construction drawings	6-81	2-81	-	-
Commencement of construction	1-82	6-81	9-80	-
Completion of construction	6-83	1-83	9-81	-
<u>Furniture and Equipment</u>				
Completion of preliminary lists	3-80	3-80	1-80	1-80
Completion of final lists with complete specifications	1-81	1-81	3-80	3-80
Completion of installation of major furniture and equipment	6-83	1-83	9-81	9-81
<u>Technical Assistance</u>				
Commencement of fellowship programs	9-80	9-80	9-80	4-80

/1 A - ME project institutions.
B - MAP project institutions.

V. AGREEMENTS REACHED AND RECOMMENDATIONS

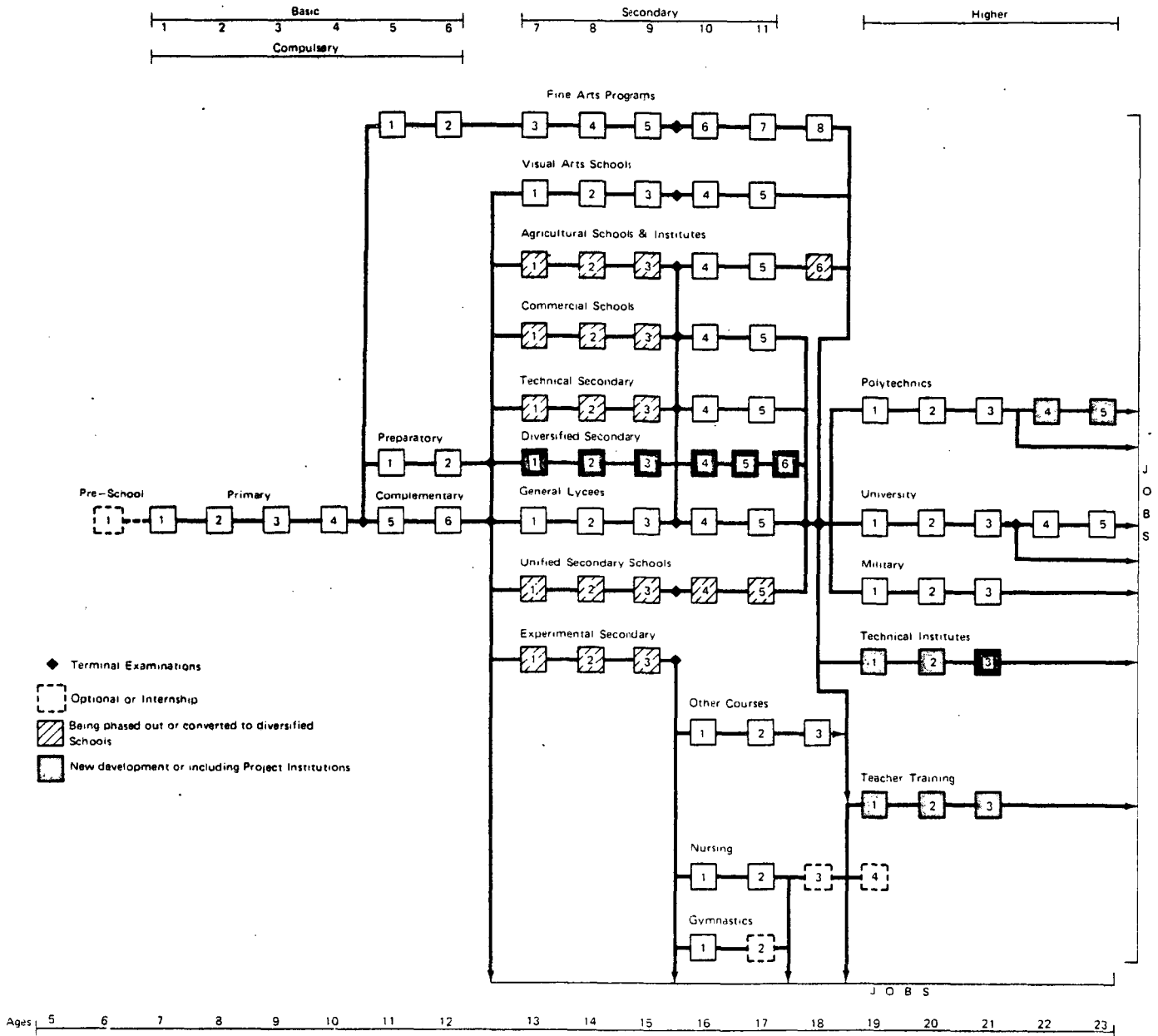
5.01 During negotiations agreement was reached on the following principal points:

- (i) a follow-up system to trace graduate placement and job performance would be developed and operational by the time the first classes graduate from the agricultural and engineering technician training institutes (paras 2.07 and 2.11);
- (ii) a detailed plan and schedule for in-service training of teachers for the agricultural technician training institutes and the diversified secondary schools would be prepared and sent to the Bank for review and comment within six months of the Loan Agreement (paras 2.08 and 2.16);

- (iii) a follow-up study of the secondary diversified school graduates to trace their entrance into further studies or job placement and subsequent performance in each would be developed and operational by the time the first classes graduate (para 2.17);
- (iv) the recruitment of consultants on terms and conditions satisfactory to the Bank and the Borrower, and the arrangements for fellowship training would be carried out substantially as scheduled in Annex 1, Schedule 1.1 (para 2.34); and
- (v) the project would be implemented in accordance with Schedules 1.1 and 1.2 of Annex 1 (para 4.03).

5.02 Subject to the above conditions, the project is suitable as the basis for a loan of US\$40.0 million to the Republic of Portugal for a term of 15 years including a grace period of three years.

PORTUGAL
DEVELOPING STRUCTURE OF THE FORMAL SCHOOL SYSTEM, 1978-79



COMPARATIVE EDUCATION INDICATORS (CONTD)

AUGUST 21, 1979

YR.	POP. MILLS.	GNP/CAPITA AT MARKET PRICES (US\$)	% GNP DEVOTED TO EDU. (PUBLIC ONLY)	% TOTAL PUBLIC EXP. TO EDU.	% OF PUBLIC EDUCATION EXP. ALLOCATED TO PRI. SEC. HI.	LITERACY RATE (% OF ADULTS)	PRI. ENROLLMENT NET (%)	COMPLETION RATE FOR PRI. SCH. CYCLE (%)	PRI. STU-DENTS PER TEACHER	AV. PRI. SCH. TEACH. SALARY IN RELATION TO GNP CAPITA	PROGRESS-ION RATE FROM PRI. TO SEC. (%)	SEC. ENROLLMENT NET (%)	SEC. STU-DENTS PER TEACHER	HIGHER ENROLLMENT RATIO (%)			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)				
ASIA AND OCEANIA																	
AFGHANISTAN	77N	14.3	180G	1.8	11.8	47	19	15	12	29X	69	37	3.0G	62	8X	17	1.00
BANGLADESH	73	80.4G	90G	1.2	20.2	44Y	22Y	21Y	23D	56X	48D	40	14.0	64	23XD	28	...
CHINA(TAIWAN)	73	16.3G	1.080G	3.2	14.0	28	41	22	82	98C	94	40	14.0	64	64C	28	20.00C
INDIA	75	620.4G	140G	2.6VY	...	...	...	...	29B	85XY	...	43A	...	29XY	20AY	2.34EY	...
INDONESIA	76	130.9G	280G	3.0	11.0	26	32	15	60B	79EX	43E	30E	2.0	52E	19EX	14E	2.00
IRAN	73	32.6G	2.080G	3.3	12.6	50B	18B	12B	50	77	74A	32	5.0B	80A	24	32	4.32CY
IRAQ	75	11.5G	1.390G	6.7C	16.3DR	...	...	...	26C	93XY	...	22	...	35XY	26C	8.47Y	...
JORDAN	77	2.3	997	4.5K	7.1K	25R	50R	3R	70	97X	81	32	2.0	91	68	22	10.60
KOREA	78	37.0	1,242	2.8	17.9	35	29	36	93	102X	94	49	2.9	91	60	45	18.00
LEBANON	72	3.2G	1.070G	3.9	18.0	39	40	10	68	86	65	19	2.0	63	26U	25	23.00
MALAYSIA	76	12.6	880	6.7	28.0	42	34	15	80C	95	93	32	3.7	78	48	28	3.00
NEPAL	76	12.8F	110F	1.1	10.0	29	20	41	19	59	28	31	2.3	64	14	24	0.8
OMAN	72	0.8F	2.300F	1.7N	3.8	96	-	-	20	24X	99	27F	7.0	...	0.4X	9	...
PAKISTAN	75	71.3G	180G	1.6	16.2	45	25	18	21	47X	90	39	2.0	...	17X	18	6.00
PAPUA N.G.	75	2.8G	490G	5.6	16.1	38	16	24	32	577	73P	31	11.0	90	12X7	24	0.907
PHILIPPINES	74	43.2G	420G	2.5	14.9	73	15	12	87	104X	...	34	18.0	...	46X	...	21.00
SINGAPORE	74	2.3G	2.580G	2.7Y	9.2Y	39Y	39Y	17Y	75A	109XY	72A	31Y	...	99A	44XY	24	7.68Y
SYRIA	75	7.6G	830G	3.8	6.9	39	25	26	53	89	70	35	2.0	92	45	21	12.00
THAILAND	77	44.1	410	4.0V	20.0	55	30	15	84F	83	30	35	5.0U	70	28	25	3.00
TURKEY	73	40.9G	1,010G	5.6CY	20.6CY	...	...	...	85Y	...	...	34Y	...	...	24Y	27DY	8.83Y
YEMEN	73	5.4G	300G	0.5	4.0	45P	21P	23P	10	15X	18	36	5.0	75	2X	19	0.085Y
YEMEN P.D.R.	76	1.7	280	6.6	...	57	28	8	20	89X	48	30	5.0	94	21X	24	0.10

SUMMARY FOR DEVELOPING COUNTRIES:

NUMBER OF COUNTRIES:	94	90	88	88	85	87	95	74	95	68	77	94	91	84
RANGE:	(0.5-12.0)	(3.8-33.0)	(25-96)	(5-47)	(2-44)	(3-98)	(14-133X)	(13-99)	(19-69)	(1.9-25.0)	(7-99)	(.4-80)	(9-39)	(.01-23.0)
QUARTILES: UPPER:	9.1	21.2	54	32	22	73	94	76	46	7	83	36	25	7.0
MEDIAN:	3.9	16.3	45	23	18	90	78	55	36	4	63	17	23	2.3
LOWER:	3.0	12.4	38	18	12	20	53	30	32	3	43	9	20	.9

SYMBOLS: ...	DATUM UNAVAILABLE	A=1970 OR BEFORE	M=CURRENT PRICES	SOURCES:
-	MAGNITUDE NIL OR NEGLIGIBLE	B=1971	N=GNP	-----
?	QUESTIONABLE	C=1972	P=INCLUDING FOREIGN AID	COLUMNS: 1 AND 2 WORLD BANK ATLAS
.	INCLUDES PART-TIME STUDENTS	D=1973	Q=CENTRAL GOVT. ONLY	OR IBRD MISSIONS
**	COMBINED WITH PRIMARY	E=1974	R=MINISTRY OF EDUCATION (MOE) ONLY	3 TO 14 IBRD MISSIONS
***	UNDER REVIEW	F=1975	S=MOE AND STATE GOVT. ONLY	AND/OR UNESCO
		G=1976	T=EXCLUDING CENTRAL GOVT.	STATISTICAL
		H=1977	U=PUBLIC ONLY	YEARBOOK
		K=1978	V=INCLUDING PRIVATE EXPENDITURE	
			X=INCLUDING OVERAGED STUDENTS	
			Y=UNESCO SOURCES	

COMPARATIVE EDUCATION DATA ARE USEFUL IN THE EVALUATION OF VARIOUS EDUCATION SYSTEMS AND ANALYSIS OF RELATIVE STAGES OF EDUCATIONAL DEVELOPMENT BETWEEN VARIOUS COUNTRIES. HOWEVER, ON THE BASIS OF THE PRESENT DATA, CROSS-NATIONAL COMPARISON SHOULD BE APPROACHED WITH GREAT CAUTION. DATA PRESENTED IN THE ABOVE TABLE HAVE BEEN COLLECTED LARGELY BY THE BANK MISSIONS FROM GOVERNMENT SOURCES; THE REMAINDER ARE STAFF ESTIMATES OR DATA FROM UNESCO. EFFORTS HAVE BEEN MADE TO STANDARDIZE DEFINITIONS AND WITHIN LIMITS, TO CHECK THE ACCURACY OF THE DATA. NEVERTHELESS, SUCH DATA ARE STILL IMPERFECT IN SEVERAL RESPECTS AND THE BANK IS WORKING TO IMPROVE THEM PROGRESSIVELY ON THE OCCASION OF ITS OPERATIONAL WORK. IN THE USE OF THESE DATA, THE FOLLOWING QUALIFICATIONS SHOULD BE BORNE IN MIND:

- "EDUCATION" AS DEFINED IN THE TABLE INCLUDES ALL EDUCATION AND TRAINING, FORMAL AND NON-FORMAL;
- PRIMARY EDUCATION REFERS TO EDUCATION AT THE FIRST LEVEL AND "SECONDARY" EDUCATION REFERS TO ALL EDUCATION AT THE SECONDARY LEVEL REGARDLESS OF TYPE (E.G. GENERAL, TECHNICAL, AGRICULTURAL);
- "LITERACY RATES" (COL. 6) ARE OFTEN OBTAINED FROM COUNTRY CENSUSES. IN MANY COUNTRIES THEY ARE ONLY APPROXIMATIONS AND IT IS DOUBTFUL THAT ANY UNIFORM DEFINITION OF "LITERATE" HAS BEEN FOLLOWED CONSISTENTLY;
- "PUBLIC EXPENDITURE IN EDUCATION" (COLS. 3, 4 AND 5) REFER TO ALL CAPITAL AND RECURRENT EXPENDITURES DEVOTED TO EDUCATION BY PUBLIC AND QUASI-PUBLIC AGENCIES;
- "ENROLLMENT RATIOS" (COLS. 7, 12 AND 14) REFER TO SCHOOL YEAR AND MEAN THE PERCENTAGE OF ELIGIBLE CHILDREN ENROLLED FULL-TIME IN THE APPROPRIATE SCHOOL, PUBLIC AND PRIVATE BY LEVEL. THEY ARE OFTEN SUBJECT TO A WIDE MARGIN OF ERROR IN THE DEVELOPING COUNTRIES OWING TO VARIATION IN THE ACCURACY OF BASIC DATA (I.E. AGE-SPECIFIC POPULATION AND ENROLLMENTS). ENROLLMENT FIGURES FREQUENTLY ARE HIGHER THAN THE NUMBER OF STUDENTS ACTUALLY IN SCHOOL. OVERAGED STUDENTS WHO ARE INCLUDED IS INDICATED BY FOOTNOTES ALSO CAN INFLATE THE RATIOS.

PORTUGAL II

Unit Capital Costs ^{/1} and Areas Per Student

<u>Type of Facility</u>	<u>Gross Area Per Student: M²</u>	<u>Site Works & Building</u>	<u>Furniture</u>	<u>Equipment</u>	<u>Total</u>
			-----US\$-----		
Vocational/Science Blocks to existing Secondary Schools (ME)	/2	/2	/2	/2	/2
Agricultural Technician Training Institute (ME) Academic and Communal	18.3 ^{/3}	5,700 ^{/3}	500	1,900	8,100
Engineering Technician Training Institute (ME)	Existing	-	-	1,300 ^{/4}	1,300
Primary Teacher Training Institute. (ME)	Existing	-	-	500 ^{/4}	500
Faculty of Education Faculty of Agriculture Faculty of Veterinary Medicine Faculty of Engineering Faculty of Science	} (ME)	Existing; supplemental equipment only.			
Farmer Training Center (MAP) Academic and laboratory areas only ^{/5}	8.5	2,600	200	600	3,400
Demonstration Center (MAP) Academic and laboratory areas only ^{/5}	12.15	2,900	300	600	3,800

^{1/} Excluding professional fees and contingencies.

^{2/} No meaningful unit area and unit cost can be determined because of extreme variances within these institutions.

^{3/} Excluding farm buildings.

^{4/} New equipment only.

^{5/} Excluding farm buildings and farm equipment.

PORTUGAL I I

Contingencies Allowances
(in US\$ Millions)

	<u>Building</u>		<u>Furniture</u>		<u>Equipment</u>		<u>Prof. Servcs.</u>		<u>Fellowships</u>		<u>Experts</u>		<u>Total Project Costs</u>		
	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Total</u>		
Contingencies (as % of project cost):															
Unforeseen	10.0	10.0	10.0	10.0	10.0	10.0	10.0	-	5.0	5.0	5.0	5.0			
Price escalation ^{1/}	23.7	23.7	27.6	27.6	27.6	27.6	23.7	-	15.8	15.8	21.0	21.0			
Project cost (without contingencies):															
Millions Escudos	495.42	212.32	15.33	6.57	118.63	1,067.66	11.43	0	16.67	66.67	5.33	21.33	662.81	1,374.55	2,037.36
Millions US\$	10.41	4.46	0.32	0.14	2.49	22.42	0.24	0	0.35	1.40	0.11	0.45	13.92	28.87	42.79
% Foreign Exchange		30.0		30.0		90.0		0.0		80.0		80.0		67.5	
Contingencies (amounts):															
Unforeseen															
Millions Escudos	49.54	21.23	1.54	0.66	11.86	106.77	1.14	0	0.83	3.33	0.27	1.07	65.18	133.06	198.24
Millions US\$	1.04	0.45	0.03	0.01	0.25	2.24	0.03	0	0.02	0.07	0.00	0.02	1.37	2.79	4.16
Price escalation															
Millions Escudos	129.16	55.36	4.65	1.99	36.02	324.14	2.98	0	2.77	11.06	1.17	4.70	176.75	397.25	574.00
Millions US\$	2.71	1.16	0.10	0.04	0.75	6.81	0.06	0	0.06	0.23	0.03	0.10	3.71	8.34	12.05
Subtotal															
Millions Escudos	178.70	76.59	6.19	2.65	47.88	430.91	4.12	0	3.60	14.39	1.44	5.77	241.93	530.31	772.24
Millions US\$	3.75	1.61	0.13	0.05	1.00	9.05	0.09	0	0.08	0.30	0.03	0.12	5.08	11.13	16.21
\$ Foreign Exchange		30.0		30.0		90.0		0.0		80.0		80.0		68.7	
Total project cost (with contingencies):															
Millions Escudos	674.12	288.91	21.52	9.22	166.51	1,498.57	15.55	0	20.27	81.06	6.77	27.10	904.74	1,904.86	2,809.60
Millions US\$	14.16	6.07	0.45	0.19	3.49	31.47	0.33	0	0.43	1.70	0.14	0.57	19.00	40.00	59.00
% Foreign Exchange		30.0		30.0		90.0		0.0		80.0		80.0		67.8	

Total contingencies: As % of total project cost, 27.5; as % of project cost without contingencies, 37.9

^{1/} Price escalation computed on basis of (a) annual price escalation rates;
(b) project completion 6/1984 or 4-1/2 years from Loan signing;
(c) estimated progress of work per year and corresponding price increase rates;
(d) project cost including the physical unforeseen contingency.

	<u>Price escalation rates</u>				
	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983-85</u>
Civil works	10.0%	9.0%	8.0%	7.0%	7.0%
Furniture and equipment	10.0%	14.0%	12.0%	10.0%	8.0%
Technical assistance	7.0%	10.0%	9.0%	3.0%	7.0%

Rate of exchange: US\$1.00 = 47.6 Escudos

PORTUGAL

EDUCATION II

Schedule for Technical Assistance

<u>Project Item and Type of Technical Assistance Required</u>	<u>Total Man/Months and Recommended Beginning Dates</u>			
	<u>Experts</u>	<u>Date</u>	<u>Fellowships</u>	<u>Date</u>
<u>MINISTRY OF EDUCATION (MEC)</u>				
<u>Faculty of Education</u>				
<u>Fellowships</u>				
Teaching Faculty (36@2 months)			10	4-80
			20	9-80
			20	4-81
			22	9-82
Teaching Faculty (12@18 months)			108	9-80
			108	9-81
Technical Teacher Trainers (5@24 months)			120	9-80
<u>Industrial Technician Training</u>				
<u>Experts</u>				
Program Development (6@3 months)	18	9-80		
<u>Fellowships</u>				
Directors of Institutes (3@4 months)			12	1-81
Sr. Theory Instructors (17@4 months)			68	1-81
Sr. Lab Shop Instructors (17@4 months)			68	1-81
<u>Agricultural Technicians</u>				
<u>Training Institutes</u>				
<u>Experts</u>				
Program Implementation:				
Rural Engineering (2@6 months)	12	9-82		
Home Economics (4@3 months)	12	9-82		
Crop Production (2@3 months)	6	9-82		
Animal Production (2@3 months)	6	9-82		
Field Programs Coordinator (1@6 months)	6	3-83		

Project Item and Type of Technical Assistance Required	Total Man/Months and Recommend Beginning Dates			
	Experts	Date	Fellowships	Date

Fellowships

Rural Engineering:

Agri. Machinery (2@18 months)			36	9-80
Irrigation (4@18 months)			72	9-80
Home Economics (4@24 months)			96	9-80
Crop Production (6@9 months)			54	9-80
Animal Production (4@9 months)			36	9-80
Farm Management (1@12 months)			12	9-80
Directors of Institutes (2@3 months)			6	9-80

Faculty of Veterinary Medicine

Fellowships

Mobil Clinic (1@6 months)			6	9-80
Animal Production (1@9 months)			9	9-80
Livestock Management (1@6 months)			6	9-80

Faculty of Agriculture

Fellowships

Crop Production (1@4 months)			4	2-81
Animal Production (1@4 months)			4	2-81
Mechanization (1@4 months)			4	2-81
Horticulture (1@4 months)			4	2-81
Plant Pathologist (1@4 months)			4	2-81
Pest Control (1@4 months)			4	2-81

Faculty of Engineering

Fellowships

Laboratory Professors (9@2 months)			18	9-80
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Project Administration

Fellowships

Administration personnel			18	6-80
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Project Item and Type of Technical Assistance Required	Total Man/Months and Recommend Beginning Dates			
	Experts	Date	Fellowships	Date
<u>MINISTRY OF AGRICULTURE (MAP)</u>				
<u>Farmer Training Centers</u>				
<u>Experts</u>				
Program Planning (1@2 months)	2	9-80 9-81		
Program Evaluation (1@2 months)	2	6-81 6-82		
Agriculture Cooperatives (1@2 months)	2	5-81 5-82		
Home Economics Trainer (1@2 months)	2	9-81		
Nutrition Education (1@2 months)	2	9-81		
Adult Literacy (1@3 months)	3	9-81 9-82 9-83		
<u>Fellowships</u>				
Program Development (2@3 months)			6	9-81
Planning & Administration (1@3 months)			3	9-81
Evaluation (1@3 months)			3	9-81
Curriculum Development (1@3 months)			3	9-81
<u>Nutrition Education Program</u>				
<u>Experts</u>				
Food Economics (1@ 2 months)	2	6-80 6-81		
Nutritionist (1@2 months)	2	6-80 6-81		
<u>Fellowships</u>				
Nutrition (1@6 months)			6	10-80
Food Economics (1@6 months)			6	10-81
Food Policy (1@6 months)			6	10-82
Nutrition Field Coordinator (2@3 months)			3	10-80
			3	10-81

<u>Project Item and Type of Technical Assistance Required</u>	<u>Total Man/Months and Recommended Beginning Dates</u>			
	<u>Experts</u>	<u>Date</u>	<u>Fellowships</u>	<u>Date</u>
<u>Agricultural Information Facility</u>				
<u>Fellowships</u>				
Technical Illustrator (1@18 months)			18	10-80
<u>Project Administration</u>				
<u>Fellowships</u>				
Project Administration Personnel			12	6-80

**PORTUGAL II
Implementation Schedule**

MINISTRY OF EDUCATION AND CULTURE (MEC)	1979				1980				1981				1982				1983				1984			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
I. Agricultural Technician																								
<u>Training Institutes</u>																								
Design and Construction:																								
Consultant Architects Selected																								
Site Acquisition and Survey																								
Preliminary Design																								
Design Development Drawings																								
Bid Documents																								
Final Construction Drawings and Cost Estimates																								
Bid Announcement, Evaluation and Contract Awards																								
Construction																								
Guarantee Period																								
Furniture and Equipment:																								
Preliminary Lists																								
Final Lists																								
Specifications and Costs Estimates																								
Bid Documents																								
Bid Announcement, Evaluation and Contract Awards																								
Manufacturing, Delivery and Installation																								
Guarantee Period																								
II. Vocational/Science Blocks to existing Secondary Schools:																								
Design and Construction:																								
Preliminary Design																								
Design Development Drawings																								
Bid Documents																								
Final Construction Drawings and Cost Estimates																								
Bid Announcement, Evaluation and Contract Awards																								
Construction																								
Guarantee Period																								
Equipment																								
Preliminary Lists																								
Final Lists																								
Specifications and Costs Estimates																								
Bid Documents																								
Bid Announcement, Evaluation and Contract Awards																								
Manufacturing, Delivery and Installation																								
Guarantee Period																								

● Indicates Bank Approval/Review

Negotiations

Closing Date

PORTUGAL II Implementation Schedule

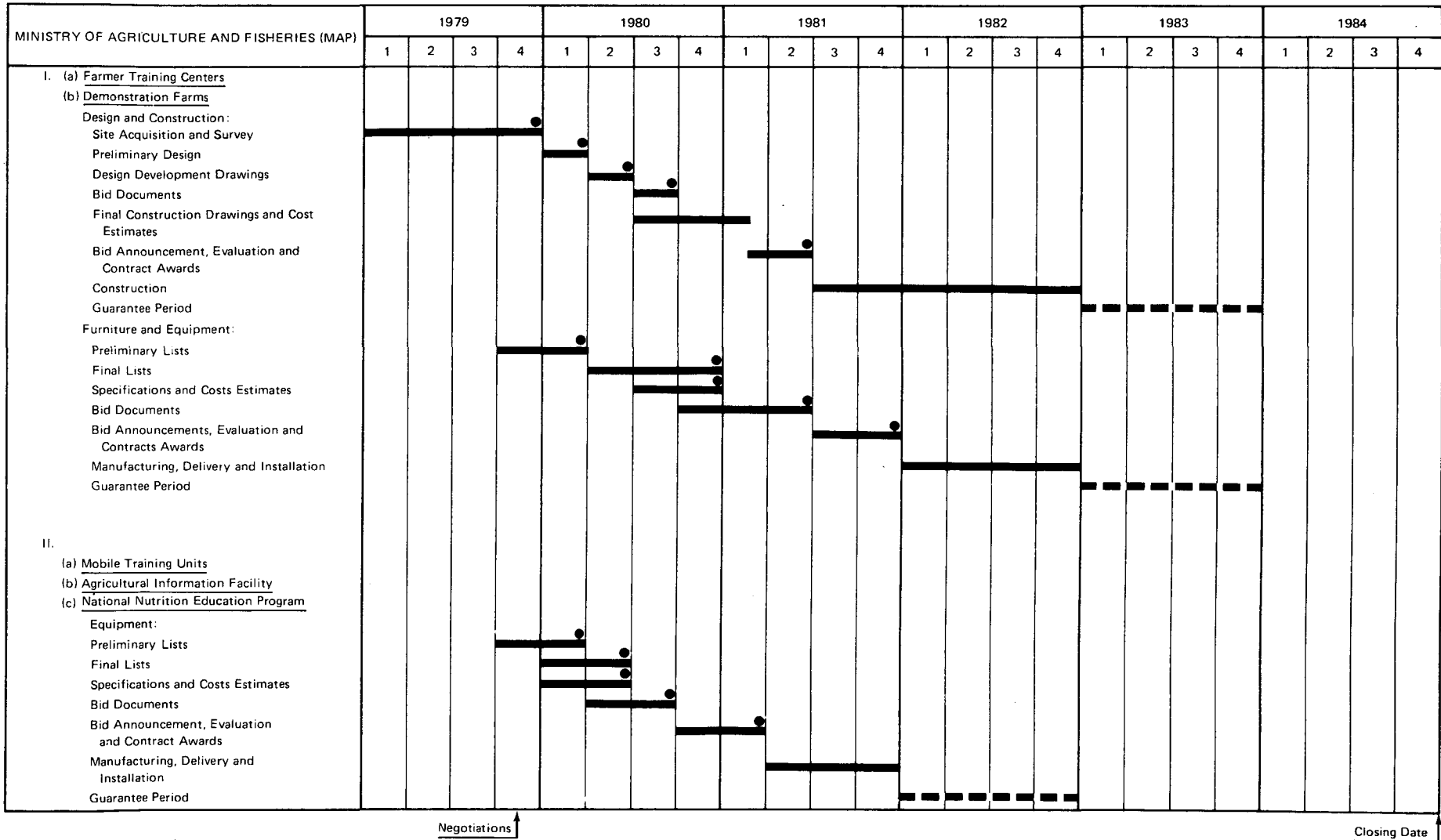
MINISTRY OF EDUCATION AND CULTURE (MEC)	1979				1980				1981				1982				1983				1984			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
III. (a) <u>Engineering Technician Training Institutes</u>																								
(b) <u>Primary Teacher Training Institutes</u>																								
(c) <u>Faculty of Education</u>																								
(d) <u>Faculty of Agriculture</u>																								
(e) <u>Faculty of Veterinary Medicine</u>																								
(f) <u>Faculty of Science</u>																								
(g) <u>Faculty of Engineering</u>																								
Equipment:																								
Preliminary Lists				●				●																
Final Lists								●																
Specifications and Costs Estimates								●																
Bid Documents																								
Bid Announcement, Evaluation and Contract Awards																								
Manufacturing, Delivery and Installation																								
Guarantee Period																								

● Indicates Bank Approval/Review

Negotiations ↑

Closing Date ↑

**PORTUGAL II
Implementation Schedule**



● Indicates Bank approval/review

Negotiations ↑

Closing Date

PORTUGAL II

Estimated Schedule of Disbursements
(in US\$ million)

<u>Calendar Date</u>	<u>Fiscal Year</u>	<u>FY Semester</u> 1/	<u>Disbursements</u>		<u>Accumulated Disbursements</u>		<u>Undisbursed Balance</u>	
			<u>Amount</u>	<u>%</u>	<u>Amount</u>	<u>%</u>	<u>Amount</u>	<u>%</u>
1/1/80	--	1980						
			2	0.0	0.0	0.0	0.0	40.0 100.0
7/1/80								
			1	0.5	1.2	0.5	1.2	38.8 98.8
1/1/81	--	1981						
			2	1.8	4.5	2.3	5.7	37.7 94.3
7/1/81								
			1	3.6	9.0	5.9	14.7	34.1 85.3
1/1/82	--	1982						
			2	7.0	17.5	12.9	32.2	27.1 67.8
7/1/82								
			1	11.2	28.0	24.1	60.2	15.9 39.8
1/1/83	--	1983						
			2	9.2	23.0	33.3	83.2	6.7 16.8
7/1/83								
			1	4.5	11.3	37.8	94.5	2.2 5.5
1/1/84	--	1984						
			2	2.2	5.5	40.0	100.0	0.0 0.0
7/1/84								
			1					
1/1/85	--	1985						
			2					

1/ Beginning from the Date of Loan Agreement (anticipated at March 1980).

RELATED DOCUMENTS AND DATA AVAILABLE IN THE PROJECT FILE

A. Reports and Studies Relating To Education

Republic of Portugal, the Education and Training System: Issues, Strategies and Priorities. World Bank Report No. 1545-PO, March 10, 1975

Portugal: Evolucao do Ensino Superior dos Escolas, Ministerio da Educacao e Cultura, 1978

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B. Reports and Studies Relating to the Project

Project Requests. Government of Portugal, February 1979

Recent Laws and Decrees Affecting Project Items, Government of Portugal

Portugal: Project Brief - Proposed Second Education Project, IBRD, December 12, 1978

C. Selected Working Papers of the Project

Republic of Portugal: Second Education Project, Educational and Architectural Working Papers, May 1979

