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BARBADOS

STAFF APPRAISAL REPORT ON A

FIRST EDUCATION PROJECT

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Projects Department
Latin America and Caribbean Regional Office

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CURRENCY EQUIVALENTS
(since July 1975)

Currency Unit	=	Barbados Dollar (BDS\$)
BDS\$2	=	US\$1
BDS\$1	=	US\$0.50
BDS\$1 million	=	US\$500,000

WEIGHTS AND MEASURES

1 hectare (ha)	=	2.47 acres
1 square meter (m ²)	=	10.76 square feet
1 square kilometer (km ²)	=	0.39 square miles

GLOSSARY OF ABBREVIATIONS

BCS	-	Barbadian Civil Service
BIMAP	-	Barbados Institute of Management and Productivity
CARICOM	-	Caribbean Common Market
CFTC	-	Commonwealth Fund for Technical Cooperation
CIDA	-	Canadian International Development Agency
IDB	-	Inter-American Development Bank
MCW	-	Ministry of Communications and Works
MOE	-	Ministry of Education and Culture
OAS	-	Organization of American States
UWI	-	University of the West Indies

GOVERNMENT OF BARBADOS
FISCAL YEAR

April 1 - March 31

STAFF APPRAISAL REPORT ON A

FIRST EDUCATION PROJECT

Table of Contents

	<u>Page No.</u>
<u>BASIC DATA</u>	
I. <u>SOCIO-ECONOMIC FACTORS RELATED TO EDUCATION DEVELOPMENT .</u>	1
II. <u>THE EDUCATION AND TRAINING SECTOR</u>	2
A. Assessment of the Education System	2
Administration and Structure	2
Enrollment Characteristics	2
Efficiency and Productivity	3
Curriculum and Teacher Education	4
B. Formal and Non-Formal Vocational Training	5
C. Education Finance and External Aid	6
D. Education Development Strategy	8
Government Sector Policy, Strategy and Priorities	8
III. <u>THE PROJECT</u>	9
Objectives and Content	9
The Elements of the Project	10
General Education (Primary and Secondary)	10
Teacher Education	12
Industrial Training	13
Technical Assistance and Professional Fees	15
IV. <u>COST ESTIMATES, FINANCING AND IMPLEMENTATION OF THE PROJECT</u>	15
Cost Estimates	15
Financing Plan	17
Project Implementation	18
Procurement	19
Disbursements	19

This report is based on the findings of an appraisal mission which visited Barbados in July 1978. The mission comprised Messrs. C.L. Germanacos (education planner, consultant), A. Stocker (economist), A. Alberti (vocational education specialist) and S. Kadleigh (architect, consultant).

Table of Contents (Continued)

	<u>Page No.</u>
V. <u>BENEFITS, RISKS AND EVALUATION</u>	20
Benefits	20
Risks	20
Evaluation	21
VI. <u>AGREEMENTS REACHED AND RECOMMENDATIONS</u>	21

ANNEXES

ANNEX 1 Supporting Tables and Charts

TABLES

T-1	Comparative Education Indicators
T-2	Actual and Projected Enrollments and Teacher Requirements
T-3	Primary Education: Enrollments in Government Schools
T-4	Enrollments in Secondary Schools
T-5	Public and Private Expenditures in Education
T-6	Capital Cost Estimates
T-7	The Project Secondary Schools
T-8	Accommodation Proposals for Construction, Equipment and Furniture
T-9	Technical Assistance for BIMAP
T-10	The Project Unit
T-11	Disbursement Schedule

CHARTS

C-1	Organization Chart--Ministry of Education and Culture
C-2	Structure of the Formal Education System
C-3	Project Implementation Schedule

ANNEX 2 Selected Documents and Data Available in the Project File

MAP

BARBADOS

Basic Data

Area	431 km ²
<u>Population</u> (1976) Total	247,000
Density	574 per km ²
Average Annual Population Growth (1970-76)	0.7%
Literacy	99%

GNP Per Capita (1977) US\$1,760

Public Education Expenditures as
% of Total Government Expenditures (1976)

- Recurrent	23.7%
- Capital	16.2%
- Total	22.1%

Education Expenditures as % of GNP (1976)

- Public	8.1%
- Private	1.6%
- Total	9.7%

Enrollments (1976-77)

	<u>Total</u>	<u>Gross</u>
Primary Level	32,724	106%
Second Level	29,488	94%
Higher Education	2,562	

Qualified Teachers (1976-77)

Primary	75% (data incomplete)
Secondary	75% (data incomplete)

Teacher-Student Ratio (1976-77)

Primary	1:21
Secondary	1:17

I. SOCIO-ECONOMIC FACTORS RELATED TO EDUCATION DEVELOPMENT

1.01 Barbados is a medium-income developing country in the Caribbean, with a per capita GNP of US\$1,760 in 1977. The island's major natural resources include climatic and soil conditions which favor the traditional cultivation of sugarcane and extensive beaches which attract tourists. The quality of the country's human resources is unusually high for the region, as 72% of the population over 15 years of age had attained secondary level schooling in 1976, and adult literacy is estimated at 99%. Total population has grown by only 0.7% annually between 1970-76 as a result of a successful family planning program and of high emigration prompted by the island's extreme population density. In consequence, enrollments in the education system have been relatively stable in the past few years. The poor economic performance in the early 1970s is attributable to the world recession, which led to a decline in tourism and investment. Economic growth picked up in 1976 (to about 5%), although the fall in international sugar prices in that year delayed the recovery, illustrating the economy's continued vulnerability to external disturbances.

1.02 The slow pace of economic expansion and reduced emigration in recent years have created serious unemployment in Barbados, amounting to 12.5% of the labor force in mid-1978. Employment in agriculture has fallen by over 60% since 1960, and this sector engaged only 10% of the labor force in 1976. The decline is attributable to the increasing mechanization of sugarcane cultivation and limited land availability for the production of other crops. The industrial sector, including construction, retained about a quarter of the labor force, while employment in services (including tourism and government) increased from 46% in 1960 to nearly 66% in 1976.

1.03 The Government's current development program is focused on diversifying the economy to reduce its dependence on a few sectors and to ensure more stable growth. Promotion of manufacturing exports forms the central strategy, while in the agricultural sector, a higher priority is being given to production of food crops for local consumption. The manufacturing and non-sugar agricultural sectors achieved impressive growth rates of almost 18% and 7%, respectively, in 1976, as a result of new private and public sector investments. However, serious weaknesses which have appeared in the balance of payments and public finances could undermine the economic recovery unless firm corrective action is applied. The Government has already begun to adopt measures to curb the expansion of imports and improve public savings performance.

1.04 Whether the Barbadians can reach and maintain the 5% annual rate of economic growth envisioned by Government will depend largely on their success in utilizing the country's well-educated labor force to develop a comparative advantage in manufacturing for the region. Specifically, a major effort is needed to provide training in the skills needed by industry for the promotion of export manufacturing. The Government recognizes this fact and will continue to devote a major part of its budgetary expenditures to the education sector.

A high priority has been assigned to vocational training, and the Government proposes to give further impetus to science learning and technical studies in the general secondary schools which for some years have been diversifying their curricula in this direction.

II. THE EDUCATION AND TRAINING SECTOR

A. Assessment of the Education System

2.01 A brief review and assessment of the major substantive features of the education system will highlight its strengths and weaknesses and point up the key issues to be dealt with in the present effort to reshape the system into a more powerful instrument for economic advancement and equitable social progress.

Administration and Structure

2.02 The Ministry of Education and Culture (MOE) has jurisdiction over almost all education and training activities on the island except for the University of the West Indies (UWI) campus which is administered by the regional council. The section of the UWI School of Education which is located in Barbados, however, is fully financed by the Barbados Government. Key divisions or sections in the MOE (Chart C-1) are: (a) the Curriculum Development Unit which is responsible for preparing related equipment lists and textbook materials; (b) the Audio-Visual Aids Service which designs and produces a variety of simple audio-visual aids and develops and produces radio and tele-lessons on a limited scale; (c) the School Buildings and Maintenance Section which is responsible for school maintenance and major repairs, and preparation of furniture norms; and (d) the Planning Section, under the Senior Assistant Secretary for External Planning, which is responsible for educational planning, determination of physical requirements of new schools and overall execution of investment programs.

2.03 The structure of the formal education system remains traditional except that since 1977, following the decision to extend the school leaving age from 14 to 16, all second-level students are expected to have a five-year course. The basic structure, therefore, comprises three levels (Chart C-2): primary (grades 1-6, normal age group 5 through 10); secondary (grades 7-11, normal age group 11 through 15) and 6th form (grades 12 and 13, normal age group 16 and 17); and higher (grades 12/13/14 to grades 13/16).

Enrollment Characteristics

2.04 The quantitative characteristics for 1976-77 are summarized in the table below (see Annex I, Tables T-1 - T-4 for details):

<u>Level</u>	<u>Enrollment</u>	<u>As % Age Group</u> /1	<u>% Female</u>	<u>% Private</u>	<u>Teachers</u>	<u>Teacher- Student Ratio</u>
Primary	32,724	106	49	9	1,727 /3	1:21
Second Level /2	29,488	94	51	20	1,098 /4	1:17
Higher	2,562 /5	-	48	1	-	-

/1 Gross rates, i.e., includes over-age students.

/2 Including primary school "tops"; because of insufficient places in secondary schools to accept all children completing primary education, a number of such children (about 15% in 1977) remain in the primary schools to carry on second level studies in what are called the "all-age tops" of the primary school. Also included is the 6th form, but age group refers to ages 11-15.

/3 Public school teachers only, including those of pre-primary schools and primary school "tops" (grades 7-9).

/4 Public school teachers only, excluding those of primary school "tops," the Polytechnic, Hotel School and Housecraft Center.

/5 Incomplete data.

Efficiency and Productivity

2.05 The gross enrollment rates shown above remain remarkably high when translated into net rates--virtually complete registration of the 5 through 10 years age-group and the equivalent of 84% of the normal 11 through 15 age-group or 80% of the 11 through 16 age-group. Wastage in grades 1 through 11, other than in cases of emigration, is now negligible. There was some loss before 1977, when the school-leaving age was 14, among older students who were following second-level courses in the "tops" of extended primary schools for lack of places in the secondary schools. Repetition is insignificant except in grade 11, the year of the coveted external school-leaving certificate and higher education entrance qualification requirement. The average daily attendance rate is at a high 90% in both primary and secondary education and unpunctuality is marked only when inclement weather delays arrival. There is no disparity between male and female enrollment. It needs to be pointed out that these impressive achievements have been realized in a country in which there is no compulsory education law. This achievement underscores the intense interest of parents in their children's education as an instrument of social mobility and economic progress as well as of personal fulfillment. This high level of motivation among parents and students is a factor which cannot be ignored when assessing the feasibility of proposed changes.

2.06 But there are weaknesses in the education system. The system is beginning to show signs of strain as the aging physical resources have manifested their inability to cope with the task of expanding enrollments in secondary education and with the diversification and practical work of the new curricula in both primary and secondary levels. Primary school buildings,

often churches or church halls, are old and costly to maintain (always at Government cost). Most secondary schools, particularly outside the capital, have to use old plantation mansions and/or temporary wooden huts to house their students. Moreover, the majority of these primary and secondary schools will require new buildings since repair or renovation of existing buildings are no longer economical. As a result, both primary and secondary class groups are small (22-30) and teacher-student ratios uneconomical (1:21 in primary and 1:17 in secondary) because the individual physical spaces available and/or the type of old furniture used cannot accommodate a bigger class size. Modern active teaching methodologies are often ruled out because there is physically no space for student (or teacher) movement. Most of the secondary schools have makeshift spaces for the practical activities essential to learning of the sciences, home economics, commerce and handicrafts; others do not have adequate numbers of such spaces to deal with the increased allocation of time now included in the curriculum. This problem is compounded by the increasing number of students (the majority) in the upper grades of the secondary schools who are participating in programs biased in practical pre-vocational directions, and which follow upon the inclusion of these subject areas in the core curriculum for all students in the lower grades.

2.07 Briefly, the majority of schools in Barbados are obsolescent and non-functional in terms of the activities inherent in modern curricula. Recurrent unit costs are high compared with other countries (see para. 2.20). The education system of Barbados has, until recently, been of high academic standard in comparison with most Latin American and other Caribbean countries. There is a high rate of graduation from the primary level and of completion of the five-year secondary course (sometimes in six years). Appropriate development to avert deterioration and to upgrade these standards calls for action to rehabilitate the physical resources. Most schools must be replaced or renovated and expanded, when the site conditions make expansion possible, to achieve an acceptable and relevant educational environment and a more economic size.

Curriculum and Teacher Education

2.08 The question of curricula has been discussed above in connection with the physical plant. The new curricula also make demands upon the form and content of teacher education. The present regular course of two years' duration for primary and secondary teacher qualification at the Erdiston Teacher Training College requires that the trainees have three or more years' experience in teaching as unqualified teachers and have attended a 15-hour-per-week evening course for one year. This ensures that those entering the regular program have been tested in the field and have every intention of continuing in the education field on graduation. Hence, failure or drop-out is negligible; but this, however, raises the primary school salary bill since trainees are paid their full salary while at college. Both the regular and in-service courses are well-designed and curricula modified in line with the new curricula introduced into the schools.

2.09 However, there are issues to be resolved. Erdiston Teacher Training College is not fully equipped to undertake some of the new types of courses and activities which should become a normal part of a modern teacher education curriculum. Moreover, a small expansion is necessary to increase intake in order to clear the backlog of unqualified teachers in the schools (about 25%) and then gradually introduce a pre-service course.

2.10 Another shortcoming in the system is the inadequate provision, at present, of technical and vocational training as compared with general secondary education, as discussed below. However, it should be observed that two IDB projects in support of the Community College and the Polytechnic will ensure adequate facilities for all levels of skill training and technical education. In addition, the proposed inclusion of technical subjects in all secondary general schools will complement this effort.

B. Formal and Non-formal Vocational Training

2.11 The MOE operates institutions for training of production and related workers at the Samuel Jackman Prescod Polytechnic (the Polytechnic), girls and women at the Housecraft Center, workers and middle-level personnel for the tourism industry at the Hotel School, and technicians in engineering and construction trades at the post-secondary level Community College. The Ministry of Health conducts programs for nurse training. The Ministry of Agriculture training effort is limited to ad hoc courses and assistance to the MOE to train qualified general subject teachers in agricultural education.

2.12 The Polytechnic prepares, in full-day and in evening courses, skilled operatives and craftsmen for direct entry into the job market and also provides programs which lead to technician-level training at the Community College. The courses include commercial studies and a one-year agricultural course. Other courses are of various duration, depending on job analysis requirements and/or full-time or part-time nature of the course. The Polytechnic is to be relocated and substantially expanded from its enrollment in 1976-77 of 737 in day courses and 1,000 in part-time and evening to a capacity of 2,500. This will open up more than 1,000 new places at upper secondary school level. This project (total cost of US\$9.5 million) is supported with a loan of US\$6.6 million by the IDB. The loan includes technical assistance to the Polytechnic in addition to about four man-years of specialists to help develop the planning process in the MOE (an education planner, an economist, a specialist in financial administration and one in school organization).

2.13 The Community College has recently moved into its new premises built and equipped with a US\$2.8 million loan from IDB and of grant equipment from the UK. It can now provide day courses for 1,500 or more students and take in an equal number of evening students; presently it is under-utilized but should build up during the next session. The College will continue to expand its present functions in one, two and three-year courses as appropriate:

- (a) for grades 12 and 13 secondary school students studying the arts or sciences for university entry;
- (b) training technicians in commercial studies, tourism trades, engineering and technology, health sciences and the arts; and
- (c) in conjunction with Erdiston Teacher Training College, training teachers for practical subjects.

2.14 Training within industry is still largely on an ad hoc basis. The apprenticeship scheme is no longer in operation and enterprises which provide training do so on their own initiative. The Government is considering a new

apprenticeship scheme in connection with the envisioned National Training Board which would be set up under the aegis of the Ministry of Labor and Community Development. The Board would be charged with the expansion, promotion and coordination of all vocational training activities on the island and elaboration of plans to reduce unemployment. It would be responsible for manpower studies, job classification, trade testing, certification and apprenticeship.

2.15 Barbados also uses regional facilities for training of technicians and professionals: the Eastern Caribbean Institute of Agriculture and Forestry in Trinidad, the Jamaica School of Agriculture (extension workers and home economics), the Regional Educational Program for Animal Health Assistants in Guyana, the Caribbean Fisheries Training and Development Institute in Trinidad, and the University of the West Indies at all its campuses.

2.16 Management and supervisory training is carried out by the Barbados Institute of Management and Productivity (BIMAP). This non-profit legal entity linked to the Ministry of Caribbean Affairs, External Trade and Industry was established in 1972 to help business, industry and government improve efficiency and productivity. It has a membership of 320 private firms apart from a number of Government agencies. It provides training programs and consulting services, carries out research studies, and disseminates relevant information. The training program at present is for some 400 managers and 200 supervisors each year. BIMAP now proposes to increase its services to small-scale enterprises and to undertake in-plant training schemes. The Government and the private sector endorse this policy.

2.17 In regard to training in agriculture, the Bank mission also appraised and redesigned on more cost-effective lines a project item for a Farmer Training and Extension Services Center under the Ministry of Agriculture. The appraisal determined that the Center could be the focal point of the extension services' component of the Rural Development Project (about US\$13 million) which is to be appraised by IDB in Autumn 1978. The Government therefore decided to transfer the item for appraisal in the IDB project.

2.18 With the completion of the Community College, and proposed expansion and relocation of the Polytechnic, formal vocational training facilities and resources for day and evening students and for operation of non-formal courses will be adequate in range and extent in Barbados and in regional institutions to meet Barbadian needs. Moreover, the provision of workshops and practical subject spaces in the secondary general schools throughout the country makes available resources for further non-formal adult education and skill upgrading activities.

C. Education Finance and External Aid

2.19 In the past four years total education expenditures, including estimated private contributions, ranged from 8.5% to 9.7% of GNP (Table T-5). The public sector accounted for some 7.0% to 8.1% of this. These levels are very high in comparison to most other countries (Table T-1). In 1976-77,

expenditures for education amounted to 22.1% of the total Government budget, comprising 23.7% of the recurrent budget and 16.2% of the capital budget, reflecting the high priority given to human resource development in Barbados. Public education is free, but student subsistence costs for uniforms, meals and stationery are considerable. The Government heavily subsidizes transportation and school meals in primary schools.

2.20 Because the volume of resources that the country devotes to education is high, the cost-effectiveness of such effort should be improved. The main problem, as already explained, is the comparatively small size of classes leading to uneconomical teacher-student ratios. As a result also of relatively high teacher salaries, recurrent expenditures per student were a high US\$250 1/ in primary and US\$400 in secondary education in 1976-77. At the primary level, salaries account for 84% of recurrent expenditures and at the secondary level for 87%. An increase in teacher-student ratios from 1:21 to about 1:29 2/ in primary and from 1:17 to about 1:23 2/ in secondary education would decrease unit costs per student and could lead to economies in recurrent expenditures by over 11% in both primary and secondary education compared with the costs of the system using 1977-78 norms.

2.21 The required capital investment for a major effort in rehabilitating the school infrastructure is included under the proposed Bank project. The project cost would represent about 45% of planned public investments in the education sector in the period 1978-81. Together with the IDB Polytechnic development, the two projects account for 83% of planned investment in the same period. The Ministry of Finance, which is particularly interested in improved cost-effectiveness in the education sector, is allocating the necessary counterpart funds for the projects in its investment plan.

2.22 External aid through bilateral and multilateral agencies has been a significant factor in the development in recent years of the education sector in Barbados. The major source of external assistance at present is the Inter-American Development Bank (IDB). In 1972 IDB approved a US\$2.8 million loan for the construction and equipment of the Community College; the project has been completed. In 1976 IDB approved a loan of US\$6.6 million for rebuilding and expanding the Polytechnic; construction is expected to start in 1979. IDB has also supported a student loan fund. OAS is providing technical assistance under its regional educational development program of about US\$0.2 million in 1978 and 1979 mainly to the MOE Curriculum Development Unit and for education technology purposes and to support training programs for unemployed youths. The USAID regional lending program for the Caribbean benefits Barbados through support to the University of the West Indies. The British Government provides under its Commonwealth Fund for Technical Cooperation (CFTC) some technical assistance (one architect) to the Ministry of Education. The Canadian International Development Agency (CIDA) is assisting BIMAP with a grant of Can\$600,000 to supplement BIMAP revenues from its participating members to operate programs in aid of small enterprises.

1/ Excluding School Meal Service.

2/ Including the school principals in both cases.

D. Education Development Strategy

2.23 In planning development in the education sector, the significant interacting factors are the smallness of the island, the small but high density of the population, the comparative smoothness of the island's configuration, the extensive road network and the subsidized inexpensive bus service. The distinction between "rural" and "urban" is of relatively minor importance in regard to education and training resources; a tradition of mobility has been established and school catchment boundaries have become inoperative. Centralized services can in most cases be planned with little, if any, inconvenience to students and teachers. Nevertheless, the expansion of the secondary schools in the rural areas would open up more spaces to accept more of the local students and reduce the extent of daily influx to the secondary schools in the capital.

Government Sector Policy, Strategy and Priorities

2.24 The most important education policy objectives of the Government are: (a) equalization of educational opportunity through extension of education to all at least up to the age of 16 and elimination of the "tops" of the extended primary schools; (b) modernization of the educational content and the physical resources and redirection of the education system to make it a more productive development tool through greater emphasis on vocational training and expanded and improved resources for technical, science and other practical studies; and (c) realizing the above aims without increasing the relatively high costs of the present system.

2.25 The basic strategy to achieve this redirection and modernization of the educational system is two-pronged: (a) to further support development of qualitative instruments and aids (teacher education and retraining in particular); and simultaneously (b) to introduce cost-effective measures to assure more rational and economic use of resources in the education-training sector. The proposed project is designed to help achieve the policy objectives and to implement the basic strategy.

2.26 The Government policy aimed at a well-educated and skilled labor force accounts for the assignment by the Government of highest priority to vocational training directly related to the needs of Barbadian industrial development and to secondary education. The IDB is supporting the training programs at technician and skilled worker level. The proposed Bank project complements this by assisting the Barbados Institute of Management and Productivity (BIMAP) in a program directed toward upgrading Barbadian management and supervisory staff expertise and introducing a more systematic program of in-plant training for skilled workers. The base for the level of skill training the Barbadians are aiming at is a sound general education in which students are exposed to practical orientations and activities and in which positive attitudes and self-understanding of aptitudes are encouraged. The proposed Bank project is developed on these lines.

2.27 The importance of application of relevant curricula and promoting a more equitable distribution of good quality education is reflected in the strategy adopted in regard to secondary general education and the elimination of the remaining "tops" of the extended primary schools. Some 4,000 new places are required in secondary general education by 1985 (see Table T-2) including the 1,000 places for upper secondary diversified general education that will be made available on completion of the IDB-supported Polytechnic project. The additional places may be provided either by building new secondary schools or by expanding existing schools on a countrywide basis and making some allowance for replacement of completely unsuitable existing places. The latter course was decided upon. The project would make additional places available in seven localities rather than three; and the expansion would take the form of providing the existing secondary schools with the essential practical facilities and equipment. This approach also relieves the pressure on more neighboring overcrowded primary schools (by taking off the students in the primary "tops") and reduces the number of additional places required in primary education by 1985 (Table T-2). The critical need for replacement of obsolescent primary places which are costly to maintain would be effected by construction of functionally designed schools combining wherever feasible two or more obsolescent small primary schools into one larger one.

2.28 The Government realizes that the teaching force must be upgraded or retrained in line with the new objectives and curricula of education, if the high expenditures on education are to achieve commensurate results in terms of quality, standards, attitudes and orientation of the output. This could be achieved by planning (Table T-2) of the education system on the basis of reasonable class sizes (about 35 in primary and secondary) and reasonable teacher-student ratios (about 1:29 in primary and about 1:23 in secondary). The Government also recognizes the need to conduct, on an even more intensive scale than is done at present, in-service courses of various durations to qualify presently unqualified teachers, to upgrade or retrain and reorient the present qualified force, and to retrain principals, deputy principals and education administrators. In addition to supporting specifically organized programs for this continuing education of teachers, the proposed project would provide practicing teachers with the facilities, tools and advisory services to prepare their own materials and aids.

III. THE PROJECT

Objectives and Content

3.01 The proposed project supports the Government policy of combining equality in educational opportunity and improved and more relevant education with measures to enhance the effectiveness of the system. Serious consideration of alternative approaches to the issues of cost-effectiveness, equal educational opportunity and broader curriculum scope is reflected in the modifications made during appraisal. The project was modified not only by reducing it to a more manageable size but also by eliminating duplication and

also financially and/or technically unsound or otherwise inadequately justified items. Some components were redesigned and significant savings made in both capital and recurrent costs. The strategy would make possible the effective application in the general school system of the modern and relevant curricula prepared by Barbadians for Barbados and would strengthen and revitalize existing institutional structures. The project would also promote complementary action to the assistance being provided by other agencies (IDB, OAS, CIDA) and the UK in this area of institution-building (para. 2.22). Finally, the project aims at strengthening the national capability in non-formal management and in-plant worker training and advisory services.

3.02 More specifically, the measures in support of this strategy are: (a) relocating obsolescent primary schools to provide an appropriate learning-teaching environment; (b) providing some secondary schools with the tools and the functionally designed spaces in which practical fields of study, such as the sciences, industrial arts, home economics, agriculture, handicrafts and commercial studies can be carried out; moreover, the physical places so provided would be instrumental in eliminating the remaining "tops" from the primary schools; and (c) in the course of preparing for (a) and (b) above, ensuring that: (i) related physical norms and standards and school organizational practices are further studied for purposes of cost-effectiveness; (ii) the teacher education sub-system reflects the new objectives and approaches and incorporates the concept of continuing education; and (iii) the MOE program and project execution capability in general is reinforced.

3.03 The proposed project thus comprises (Table T-6 for details): (a) construction, furnishing and equipping of 10 (replacement) primary schools with 5,880 student places, but essentially no additional enrollments to present enrollments; (b)(i) construction, furnishing and equipping to expand six existing secondary schools mainly through provision of new practical facilities equivalent to 2,600 student places; and (ii) equipping and furnishing of one secondary school (1,225 student places) presently under construction; (c) expansion of Erdiston (Primary and Secondary) Teacher Training College to function also as a teacher training resource center; (d) expansion of the Barbados Institute of Management and Productivity to undertake in-plant training; (e) equipment and furniture for the Project Unit; and (f) technical assistance (30 man-months of fellowships and the equivalent of 144 man-months of consultant services) in support of institution-building, project management and professional services.

The Elements of the Project

General Education (Primary and Secondary)

3.04 The 10 new primary schools to be constructed, furnished and equipped comprise: (a) seven schools which would replace 10 existing obsolescent primary schools in the rural areas; and (b) three new schools on the outskirts of the capital which would serve the population shift to new lower-income housing development areas and facilitate transfers of pupils from

the overcrowded urban schools where sites are no longer available for new construction or expansion of existing primary schools. The capacity of 5,880 student places thus would not mean increased enrollments, but improved learning resources. The new facilities would include spaces and equipment to facilitate the teaching of the redesigned primary school curriculum which includes elementary science and agriculture, crafts, basic homecrafts and health education. A nutrition area would be included for the hygienic distribution of school meals and for teaching purposes (basic nutrition and cookery in the upper grades).

3.05 More significant than the minor economies of scale effected by amalgamation in certain instances of small neighboring schools would be the economies to be gained by applying the more reasonable class size (about 35) and teacher-student norms (about 1:29 ^{1/}) in the project schools. The Government gave appropriate assurances that these norms would be applied in the completed project schools and that it intends to introduce the same norms gradually in the whole system (where the physical conditions permit). The new primary schools would also incorporate resources for remedial work to ensure that slower learners are given a chance to make the necessary progress. Erdiston Teacher Training College already provides trainees with the basic principles of diagnostic and remedial work and has the capability to go deeper into this area. The Government gave assurances that an intensive course for retraining a group of qualified primary school teachers in more advanced remedial work would be conducted annually during the period 1979-83, and one such qualified primary school teacher would be assigned to each of the project schools.

3.06 The project secondary school component addresses itself even more directly to the issues of cost-effectiveness, equal educational opportunity and improved quality and relevance of education. Six existing schools, including four of the older, more prestigious schools, would be expanded on site by the construction, furnishing and equipping mainly of: 17 science and agricultural laboratories, seven science demonstration rooms, six commercial studies rooms, six industrial arts shops and home economics centers to supplement existing shops and centers, three technical drawing rooms, 11 arts and crafts rooms, eight other practical activities rooms, and 18 ordinary classrooms. Replacement equipment would be provided for existing practical rooms in these schools, as well as complementary audio-visual aids and other equipment. In addition, one secondary school presently under construction would be fully equipped and furnished; it includes five science areas, seven industrial arts and home economics areas, six for commercial studies, and two handicrafts spaces.

3.07 The total project schools' enrollment of 7,100 would represent about 35% of total projected secondary general or diversified education enrollment in 1985. Consequently, its impact should be considerable in helping pioneer the move toward a more rational use of resources in the education sector. With the

^{1/} Including the principals.

application in the project schools of the agreed reasonable class size (about 35) and teacher-student ratio (about 1:23 1/), in respect of which the Government gave the necessary assurances, operational costs would be reduced by over 11% as compared with recurrent expenditures if the schools were expanded and worked on the present average teacher-student norm of 1:17.

3.08 In support of educational opportunity, the intake capacity of the schools would be increased from about 830 2/ at present to 1,480, thus making it possible for the equivalent of about 70% of children presently left behind in the primary "tops" to enter secondary schools. The total enrollment (including the Trent Secondary School) would be increased by about 2,700, almost equivalent to the number of students who must be transferred from primary "tops" to regular secondary schooling. In terms of physical places provided, the project would construct and/or equip the equivalent of about 3,800 student places for an enrollment of about 3,200 at an 85% utilization factor. 3/

3.09 The project schools would provide the rural areas with a broader coverage of appropriate learning-teaching resources for school-age children and for the extensive evening youth and adult education programs traditional in Barbados for upgrading, further education and community education activities. The one school to be equipped would serve the lower-income new housing development on the outskirts of the capital.

Teacher Education

3.10 Present enrollment in the Erdiston Teacher Training College is 251 students in the full-time regular two-year course, all of whom have had at least three years of teaching experience as unqualified teachers and have attended the one-year Preliminary In-Service Course. Intake is to be increased to 150 in the regular course (from 120) and to 200 in the Preliminary In-Service Course (from 180) (see para. 2.09). The Preliminary Course is now to be lengthened by three weeks using the vacation periods. It is also planned that new courses would be introduced in the period 1978-83 as resources become available, including two-year courses in physical education, arts and crafts, music and industrial arts for primary and secondary school teaching. Special refresher and retraining courses for qualified teachers would also be introduced from 1980. The courses would be run on the credit system and for the most part would be conducted during the long summer vacation. More time would be given to practical work, remedial teaching, simulation exercises, micro-teaching, and production of teaching aids.

1/ Including the principals.

2/ Excluding the intake into Trent Secondary School, the project school scheduled for equipment but which is still under construction.

3/ The apparent disparity between the actual additional enrollment of 2,700 and the possible enrollment of 3,200 is accounted for by the fact that each of the existing project schools has a number of spaces which are totally nonfunctional for modern teaching purposes and would be used for other purposes when the new blocks have been built.

3.11 Facilities, equipment and materials would be provided at Erdiston to enable the institution to broaden and expand the range of its activities and services as described above and operate as a teacher education and resource center. The facilities provided would include a well-stocked reference and study library, a demonstration and micro-teaching area, a lecture theater, a well-equipped general workshop and learning-teaching aids' design and production area. An existing vacant accommodation on the campus, previously the deputy principal's house, with minor rehabilitation, would provide some of the smaller tutorial and work areas required for the resource center activities. The facilities would be used for the regular courses of Erdiston, for in-service and other special groups, by practicing teachers in groups or individually, by the Curriculum Development Specialists of the MOE and, in particular the micro-teaching resources by the Barbados section of the UWI School of Education.

3.12 Erdiston thus would provide the resources for the continuing education needs of the teacher corps. This would be an important function in the next four years in view of the retraining or reorientation requirements of the new curriculum developments in primary and secondary education and the increasing need to effect economies in equipment purchases of learning-teaching aids through production of aids by teachers themselves.

3.13 The full-time staff of 22 and seven part-time tutors includes two full-time tutors and two part-time tutors in the Extension Division which is responsible for the Preliminary In-Service Course. Two additional extension service tutors would be required to help with the demonstration, tutorial and skill instruction functions of the resource center and for on-the-job counseling services. In addition, the new facilities would require the appointment of a fully qualified librarian, two workshop assistants and ancillary staff. Assurances were given by the Government that timely appointments of the additional staff would be made.

3.14 Erdiston, in conjunction with the Community College, the Pine Valley Agricultural Center and the Housecraft Center, has designed programs to retrain qualified teachers who have special skills and interest to become teachers for the practical subject areas of primary and junior secondary level grades--i.e., industrial arts, agriculture, home economics and handicrafts. The UWI School of Education, on the other hand, is complementing this program with courses for teachers for the arts, science and mathematics.

Industrial Training

3.15 The industrial training project component would broaden and expand the Barbados Institute of Management and Productivity (BIMAP) capability to enhance productivity through in-plant training for workers and supervisors. The project would finance:

- (a) construction, furnishing and equipping of the additional facilities on the existing site required to expand its training capacity and services offered; and
- (b) provision of the equivalent of 30 man-months of fellowships for BIMAP's present and newly appointed staff (see para. 3.21).

3.16 BIMAP would seek to improve productivity through technical assistance provided by its senior staff to enterprises and through special programs as the demand and need arise. Its assistance would embrace the fields of industrial engineering (production control, quality control, lay-outs), marketing and financing. The in-plant and institutional training programs would include 600 supervisors and training officers annually, in addition to the programs for 480 managers and middle-management personnel. Also, in-plant training would aim at the upgrading of 1,500 workers annually. The project-supported program would train 80 managers, 400 supervisors and 1,500 workers over and above present activities of BIMAP.

3.17 Different modes of training approaches would be used as appropriate to the particular requirements of a group of workers or a firm. Ad hoc courses would be provided as and when called for by industry or the Government; in some cases, BIMAP would develop more systematic courses as their study of needs pointed up areas of general and special interest to groups of member firms. Most courses would be short (about 30, 45 or 60 hours) not to deter possible candidates in the first place. In addition, courses of a cumulative pattern would be conducted. A basic aim of BIMAP would be to stimulate member and non-member firms to set up viable training programs within their own establishments. CIDA is assisting with a grant of Can\$600,000 over 1979-82 to supplement BIMAP revenues from its participating members to initiate the programs for the small-scale enterprises.

3.18 To undertake its new activities, the present staff of BIMAP of nine full-time professionals would need to be increased to 16, of whom, in general terms, four would be assigned full-time to the in-plant training programs, five to management training, four to the small enterprises programs and three to the programs for the larger firms. No problem is foreseen in appointing additional staff. BIMAP salary structure is such that there is no dearth of applicants.

3.19 Occasionally BIMAP might need to use the special facilities of such institutions as the Polytechnic or Community College, or the micro-teaching facilities at Erdiston Teacher Training College. During negotiations, proposals for evaluation of the BIMAP training activities were developed and agreed upon.

3.20 The Government gave assurances that: (a) MOE would be required to make facilities available when required, as indicated above, at reasonable cost to BIMAP; (b) BIMAP would appoint at least three new professional staff by January 1, 1980, and the remaining four by July 1, 1980; and (c) annual evaluation reports would be submitted to the Bank starting in 1981 through project completion.

Technical Assistance and Professional Fees

3.21 This component, at a total cost of US\$0.45 million, applies only to BIMAP and to the project management services. It takes into account the considerable assistance already provided or about to be provided by other agencies (paras. 2.12, 2.22) and, moreover, the fact that Barbados has substantial expertise of its own in the MOE or which could be obtained from other Government sources. The component comprises: (a) 30 man-months of fellowships for BIMAP at a cost of US\$50,000 to upgrade BIMAP staff, particularly for assistance to small-scale enterprises and in-plant training programs (details and schedule in Table T-9); (b) US\$400,000 in support of the project management services to: (i) safeguard against possible difficulties or delays in mobilizing Barbadian civil servant specialists (Table T-10) necessitating hiring of consultants or specialists (about US\$100,000); (ii) hire architectural consultants for the BIMAP project item and consultants as may be required from time to time to help in other project architectural studies and design work (about US\$150,000); (iii) hire the services of short-term consultants (about nine man-months at a cost of about US\$50,000) to help Erdiston Teacher Training College and/or the UWI School of Education (Barbados branch) develop and conduct special intensive courses for key school and MOE administration staff in 1980, 1981 and 1982; and (iv) hire the services of a quantity surveyor over a period of about three years at a cost of about US\$100,000. Technical assistance and professional fee costs have been estimated at a lower rate (US\$34,000 per man year for consultants) than the standard figure used by the Bank, because it is likely that, for the major part, Barbadian and other West Indian consultants and specialists would be hired.

3.22 Specific proposals for the fellowship program should be submitted to the Bank by June 30, 1979, for review. During negotiations the Government gave assurances that all specialists and their terms of reference and conditions of service would be acceptable to the Bank, and candidates for the fellowship programs would be selected in consultation with the Bank.

IV. COST ESTIMATES, FINANCING AND IMPLEMENTATION OF THE PROJECT

Cost Estimates

4.01 The total cost of the project is estimated at US\$14.5 million, as summarized below; further details of physical facilities and costs by category of expenditure and project institution are provided in Table T-6:

	BDS\$(000) ^{1/}			US\$(000)		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
Primary Schools	4,795.5	6,463.1	11,258.6	2,397.7	3,231.6	5,629.3
Secondary Schools	3,023.7	5,475.3	8,499.0	1,511.8	2,737.7	4,249.5
Teacher Education	318.8	716.7	1,035.5	159.4	358.4	517.8
Industrial Training	197.8	390.0	587.8	98.9	195.0	293.9
Project Administration	<u>209.5</u>	<u>640.5</u>	<u>850.0</u>	<u>104.7</u>	<u>320.3</u>	<u>425.0</u>
Base Costs ^{2/}	8,545.3	13,685.6	22,230.9	4,272.5	6,843.0	11,115.5
Contingencies						
Physical (10%)	854.5	1,368.6	2,223.1	427.3	684.3	1,111.6
Price (18.4%)	1,635.2	2,864.7	4,499.9	817.6	1,432.2	2,249.8
TOTAL COST	<u>11,035.0</u>	<u>17,918.9</u>	<u>28,953.9</u>	<u>5,517.4</u>	<u>8,959.5</u>	<u>14,476.9</u>
ROUNDED TOTAL	11,000	18,000	29,000	5,500	9,000	14,500

^{1/} US\$1.00 = BDS\$2.00 as of January 1, 1979.

^{2/} Base cost estimate expressed in prices as of January 1, 1979.

4.02 Design criteria have been agreed with the Government; these would be further studied, and when applied to the project civil works should increase the cost-effectiveness of school buildings in Barbados: first, by the adoption of more economical school planning and space standards to reduce the size of buildings required; second, by climatic design to conserve energy and improve the quality of the buildings; and third, by the use of more appropriate materials and building systems to lessen the financial burden on the country.

4.03 Base costs of civil works are expressed in estimated prices as of January 1, 1979, and have been based on actual recent costs of construction in Barbados. Accordingly, primary school buildings are costed at US\$269 per square meter of gross floor area and secondary school buildings at US\$295 per square meter, with site works estimated at 15% of the cost of buildings. Construction areas for project schools have been established using appropriate and economic space standards and schedules of accommodation developed during

appraisal. Equipment costs have been estimated for each teaching and administrative area, and furniture costs have been taken at 10% of the value of construction. Imported equipment and furniture would be exempt from customs duties and have been costed accordingly. The Government gave assurances that design drawings, equipment and furniture lists and all contractual documents would be presented for Bank approval prior to bidding. Specialist services and fellowships are estimated at an average of US\$34,000 and US\$20,000 per man-year, respectively.

4.04 Contingency allowances have been added to the base costs for:
 (a) unforeseen physical factors averaging 10% of the base cost estimate; and
 (b) expected annual price increases above the base cost estimate plus physical contingencies for: civil works (including buildings, site works and professional services), technical assistance and project administration averaging 9% during 1979, 8% during 1980 and 7% per year during 1981-82; and for furniture and equipment averaging 6.5% during 1979 and 6% annually during 1980-82. Total contingencies amount to US\$3.4 million, equal to about 30% of the base cost estimate (Table T-6).

4.05 The total foreign exchange cost of the project is estimated at US\$9.0 million, representing 62% of the total project cost. Foreign exchange costs have been calculated as follows: site works 35%, buildings 60%, furniture 58%, equipment 90%, and technical assistance 75% (Table T-6).

Financing Plan

4.06 The total capital cost of the proposed project would be met by Bank financing of US\$9.0 million and a US\$5.5 million budgetary contribution from the Central Government, as follows (in US\$'000).

	<u>1978</u> ^{1/}	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1978-83</u>
Bank Loan	-	457.0	1,714.6	2,905.5	3,457.8	465.1	9,000.0
Government Contribution	<u>55.0</u>	<u>684.0</u>	<u>3,695.6</u>	<u>910.6</u>	<u>154.8</u>	-	<u>5,500.0</u>
TOTAL	<u>55.0</u>	<u>1,141.0</u>	<u>5,410.2</u>	<u>3,816.1</u>	<u>3,612.6</u>	<u>465.1</u>	<u>14,500.0</u>

1/ Calendar Years.

The Government gave assurances that it would make sufficient and timely budgetary allocation to meet the annual requirement for counterpart funds to implement the proposed project.

4.07 The recurrent costs generated by the primary and secondary school components would be about 11% less than if the same enrollments attended schools with the present average teacher-student ratios. This saving already takes into account higher non-salary costs (materials, etc.) in project schools due to the increased practical work in laboratories and workshops. The teacher training component would cause an increase in annual recurrent expenditures of a modest US\$80,000 over the 1977-78 level. The expanded activities of BIMAP would double its 1977-78 level of expenditures by 1982. BIMAP expects that the fees charged for services rendered would cover about 90% of the annual recurrent expenditures. The Government would contribute the remaining 10%, which means its contribution would remain stable at the present level of about US\$40,000 (at 1977 prices). The overall impact of the project would be considerable savings in recurrent costs, if compared with the present less efficient system. The project impact is expected to help the Government in achieving higher efficiency and consequent cost savings on an even larger scale when the new standards are applied to all primary and secondary schools. However, the Government would have to make a substantial capital investment to achieve these results.

Project Implementation

4.08 The project would be implemented by a Project Unit which would be established within the MOE. A full-time Project Manager would be responsible for the execution of the project and would report directly to the Permanent Secretary of the MOE. Furthermore, the Government gave assurances that the Curriculum Development Section and the operational divisions of the MOE would provide the Project Manager with assistance on education matters, as required. The BIMAP component would be executed by the Executive Trustee of BIMAP with consultant services procured through the construction division of the Industrial Development Corporation to which BIMAP is closely connected. All accounting, however, would be the responsibility of the Project Manager in the MOE.

4.09 The Project Unit would design and supervise the construction of the project civil works. It would include, besides the Project Manager, three architects, one quantity surveyor, one structural engineer, one accountant and adequate supporting staff seconded or transferred to the MOE from other Government sources, and/or new appointees as necessary (Table T-10). Staff is available (except for a quantity surveyor); suitable premises for the section have been allocated and operational funds approved by the Government; assurances were given by the Government that the necessary transfers of personnel would be made by June 30, 1979, and continued operational funds be made available for project management. Technical assistance for project implementation has been discussed in para. 3.21. Retroactive financing up to a maximum of US\$200,000 may be necessary as of August 1, 1978, to assure immediate operational status for the Project Unit. Expenditures may be incurred to equip the new premises and to meet consultant services and other costs to bring the project to an advanced stage of readiness for contractual purposes by the time of Loan Agreement. To ensure that bid documents are ready by March 31, 1979, or earlier, the main tasks to be set in motion immediately are the preparation of site surveys, surveys and inventories of existing project institutions and the preparation of preliminary designs of the first phase project schools, Erdiston and BIMAP construction.

4.10 A Project Implementation Schedule (Chart C-3) has been prepared on the general lines evolved during appraisal in order to assist the Project Manager in planning, organizing and controlling project execution. The schedule was discussed during negotiations and it was mutually agreed that the Project Manager would update it regularly for use as a project implementation monitoring tool.

4.11 Sites are needed for the 10 primary schools in the project which would be built in two phases of five schools. Of the first phase schools all the sites have been selected, two are already vested in MOE. The Government gave assurances that all sites would be acquired by March 31, 1979.

4.12 Maintenance of schools is carried out reasonably efficiently by the MOE School Buildings and Maintenance Section. However, most of the existing schools were not conceived with economy of maintenance in view, and the amount of repairs and maintenance now needed are out of proportion with the MOE's limited resources. Consequently, project schools would be designed to require the minimum routine maintenance. The Government gave assurances that criteria acceptable to the Bank would be established to determine annual budgetary allocations to be made for project school maintenance, and to this end would prepare by December 31, 1979, a maintenance handbook establishing procedures.

Procurement

4.13 Contracts for civil works and the procurement of furniture and equipment would be awarded on the basis of international competitive bidding in accordance with Bank guidelines. However, furniture and equipment which cannot be grouped into packages of at least US\$50,000 and civil works contracts of less than US\$100,000 would be procured on the basis of local procedures acceptable to the Bank. The total cost of furniture and equipment procured in this manner would not in the aggregate exceed US\$300,000 (equivalent to about 12% of the estimated total cost of furniture and equipment); the total cost of civil works procured in this manner would not in the aggregate exceed US\$500,000. In the case of procurement under international competitive bidding procedures, domestic furniture and equipment manufacturers would be accorded preferential treatment in bid evaluation, limited to 15% of the CIF price of imported goods or the actual tariff application, whichever is lower, and regional preferences for other members of the Caribbean Common Market (CARICOM) would be limited to 15% of the CIF price of non-regional goods or the difference in tariffs, whichever is lower. Suppliers would be required to deliver to site, install, test and replace all damaged goods under the terms and conditions of their contracts.

Disbursements

4.14 Disbursements from the proposed loan of US\$9.0 million (equivalent to 62% of the estimated total project cost of US\$14.5 million) would finance the total estimated foreign exchange component as follows: (a) 50% of total expenditures for civil works; (b) 100% of foreign expenditures for imported or 85% of expenditures for locally procured furniture and equipment; and (c) 100% of total expenditures for technical assistance and professional fees. The loan would be disbursed over a period of 4.5 years through June 30, 1983, with construction scheduled to be completed by September 30, 1982 (Chart C-3).

V. BENEFITS, RISKS AND EVALUATION

Benefits

5.01 The major benefits derived from the project focus on: (a) introducing cost-effective measures which would reduce unit costs in primary and secondary education; (b) providing an effective learning-teaching environment for some 5,880 primary school children (16% of total enrollments) in the rural and poorer urban areas; (c) assuring increased opportunity, mainly in the rural areas, through admission to recognized secondary schools of some 70% of those children who would otherwise be relegated to the primary "tops"; (d) supporting the full application in the project secondary schools of modern and relevant curricula for the benefit of some 7,100 students (about 35% of total enrollments in secondary education), and in so doing also providing appropriate resources in the rural areas for upgrading evening courses and other adult education and community programs; (e) additional institution-building by providing for the continuing education of practicing teachers and a broader framework of preparation for trainee teachers; and (f) enabling BIMAP to expand its activities to fill the existing void in in-plant training for 1,500 workers and reaching out to small businesses and entrepreneurs; this would be in addition to its increased capacity to deal with training of managers and supervisors (additional training of 480 middle-management personnel).

5.02 The norms and standards applied in the project to schedules of accommodation, equipment requirements, building design and systems and the criteria applied in determining conversion needs and amalgamation possibilities would also serve as models for any further education investment program carried out by the Government. The project looks forward also in assuring not simply the efficient implementation of this project but also the continued capability of the MOE to deal competently with future physical requirements of the education sector, with recourse to expensive consultant services only in exceptional circumstances. This further institution-building aspect of the project complements what the IDB and the OAS are doing or proposing to do in their technical assistance programs in support of the MOE Curriculum Development and Planning Units.

Risks

5.03 There are three risks. (1) Even though the Government has expressed its intention to introduce cost-effective norms in regard to class size and teacher-student ratios, there may initially be considerable resistance by teachers' unions and parents. The Government is aware of this and should be able to carry out its policy starting with the new and expanded project schools in 1980 and 1981, and moving stage by stage to reduce the teacher-student ratio in all schools as the physical conditions permit. (2) Efficient implementation depends on the early and timely reinforcement of the project implementation mechanism by the appointment of technical personnel and/or the secondment or transfer of technical personnel from other ministries. The Cabinet has already taken action to have posts created and funds appropriated for project implementation. The Ministry of Finance has also undertaken to require the necessary

transfers to be made. Moreover, funds have been included in the project costs for appointment of consultants to meet any contingency or delay which may arise in obtaining the timely appointment/transfer of the required personnel.

(3) The additional recurrent expenditures to be incurred by BIMAP would be substantial; poor support of its new services would reduce its revenue-earning capability. However, the past demand for BIMAP services suggests that the risk of a negative response to the expanded services may be discounted, particularly as the private sector is well-represented on the BIMAP Board of Trustees. Furthermore, CIDA is providing a substantial subvention to subsidize the new services to small-scale enterprises. As a further safeguard, the Government gave assurances that it would make good any shortfall in BIMAP revenues in meeting expenditures on approved programs.

Evaluation

5.04 As part of the regular reporting procedures, the Government would undertake to keep the Bank informed of progress in the education system as a whole in moving towards the major rationalization objectives, and to provide for Bank review through project completion an annual statement on any major education policies and plans formulated. Within six months of the closing date of the Loan Account, the Government would send to the Bank a full completion report providing a preliminary assessment of all components of the project, their results and the experience gained during implementation.

VI. AGREEMENTS REACHED AND RECOMMENDATIONS

6.01 During negotiations, the Government gave assurances that:

- (a) norms and standards will be applied regarding agreed class size and teacher-student ratio in project schools at latest in the school session immediately after which project works have been completed, and gradually in the general education system as a whole as the physical facilities make it practicable (paras. 3.05 and 3.07);
- (b) specialized remedial teachers will be trained and one appointed to each of the project schools (para. 3.05);
- (c) appointment of additional staff to Erdiston Teacher Training College will be made on an agreed time schedule (para. 3.13);
- (d) appointment of additional staff to BIMAP will be made on an agreed time schedule and annual evaluation reports will be submitted to the Bank (para. 3.20);
- (e) agreement will be reached between MOE and BIMAP by June 30, 1980, on the use of MOE facilities from time to time for special short BIMAP training programs (para. 3.20);

- (f) intensive training courses will be organized for key personnel and education administrators (para. 3.21);
- (g) arrangements acceptable to the Bank for carrying out the fellowship program will be completed by June 30, 1979 (para. 3.22);
- (h) design drawings, equipment and furniture lists and all contractual documents will be presented for Bank approval prior to bidding (para. 4.03);
- (i) all sites for the project schools will be acquired by March 31, 1979 (para. 4.11);
- (j) provision will be made for timely and adequate budgetary allocations to meet annual requirements for counterpart funds (para. 4.06), operational costs of the project institutions, including BIMAP, and satisfactory maintenance of project schools (paras. 4.12, 5.03);
- (k) the Project Unit will be established, adequately staffed, funded and equipped for efficient operation by June 30, 1979; it will be established within the MOE and directed by the Project Manager, who will report directly to the Permanent Secretary of the MOE; and the Curriculum Development Section and the operational divisions of MOE would provide the Project Manager with assistance on education matters, as required (paras. 4.08, 4.09);
- (l) the Bank will be apprised of progress in the achievement of the major educational objectives and of major policies and plans formulated (para. 5.04); and
- (m) a project completion report will be submitted by the Government within six months of the closing date of the Loan Account (para. 5.04).

6.02 Prior to Board presentation, the Government submitted evidence that action had been taken, or reached a point of realization, satisfactory to the Bank in regard to:

- (a) preparation of final equipment and furniture lists so that draft contractual bid documents for equipment and furniture procurement and for bids for the first phase of construction will be ready by March 31, 1979, or earlier (paras. 4.03, 4.09);
- (b) establishing, housing, and equipping the Project Unit for project implementation purposes (para. 4.09); and
- (c) preparation of site surveys, surveys and inventories of existing institutions and preliminary scheme designs of the first phase of the primary and secondary school construction, Erdiston Teacher Training College and BIMAP (para. 4.09).

6.03 Subject to the conditions described in paras. 6.01 and 6.02 above, the project constitutes a suitable basis for a loan of US\$9.0 million to Barbados for a period of 15 years, including three years of grace.

November 20, 1978

(November 5, 1978)

Page 1 of 2

NOVEMBER 5, 1978																	
	GNP/	% GNP	% TOTAL	% OF PUBLIC	LITER-	PRI.	COMPLE-	PRI.	AV. PRI.	SEC.	SEC.	HIGHER					
	CAPITA:	DEVOTED	PUBLIC	EDUCATION	ACY	ENROLL	TION	ENTS	SALARY	IN: SCH. TEACH	PROGRESS-	SEC.	STU-	HIGHER			
	AT	TO EDU.	EXP.	RECURRENT	AC	ENROLL	TION	ENTS	SALARY	IN: SCH. TEACH	PROGRESS-	SEC.	STU-	HIGHER			
	MARKET:	(PUBLIC	DEVOTED	EXP	ALLOCATED	RATE	RATIO	RATE FOR	PER	RELATION	FROM PRI.	RATIO	PER	RATIO			
POP.	PRICES:	EXP.	TO	TO	(% OF	NET	PRI.SCH.	TEACH	TO GNP/	TO SEC.	NET	TEACH	GROSS				
YR:MILLS.	(US\$)	ONLY	EDU.	PRI.	SEC.	HI.	ADULTS	(%)	CYCLE(%)	ER	CAPITA	(%)	(%)	(%)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)			
ADVANCED																	
AUSTRIA	74	7.5F	4,870F	5.3Y	8.5EY	24Y	51Y	15Y	99	99	93D	26D	2.0D	99D	51D	19D	16.85Y
CANADA	75	22.8	7,135	7.3	16.7	30	37	26	98	99	97	19	2.0	99	90	18	16.00
GERMANY F.REP.	75	61.8	6,670	5.0	10.2	31EY	64**	26EY	99	90	23EY	...	...	99Y	84Y	22C	20.26
JAPAN	75	111.6	4,450	4.3E	20.7E	40UY	37UY	11UY	99	99D	99C	25	2.0B	99C	95XY	20C	24.69
NETHERLANDS	75	13.7	5,425	9.4	22.4D	21	39	25	99	95	95	29	2.0	97	80	20	12.00
NEW ZEALAND	73	3.1F	4,230F	5.2	...	39	24	29	99	99	99	26	...	99	67	19	24.00
NORWAY	76	4.0	8,043	7.2	14.4	54	24	15	99	99	99	16	1.5	99E	62	11	11.00
SWEDEN	76	8.2	8,150	8.8	14.0	23	29	12	99	99	99	16	...	907	85C	13	30.00C
U.K.	75	56.0	3780	7.1	13.9	26	41	18	99	99	...	24	2.0	...	68	17	21.00X
U.S.A.	76	214.6	7,950	5.4	15.8	...	72**	28	99E	99	99	22	...	99	93	19	24.00
EUROPE																	
GREECE	76	9.1	2,590	2.6	10.4	37	26	21	86B	99	82D	31	2.0	70E	80	27	15.00
IRELAND	74	3.1F	2,390F	5.1	13.9D	43Y	41Y	14Y	98	108XY	99A	35	...	95A	65XY	19	15.47Y
PORTUGAL	75	9.6	1,570	4.4	17.8	52	27	13	70	98	55	21	3.0	70	29	14	7.60
ROMANIA	75	21.2	1,240	4.0	6.4	36	19	13	98	101X	...	21	...	98	49	22	10.00
SPAIN	74	35.3F	2,750F	2.4B	15.2A	49Y	22Y	15Y	94A	115XY	...	35A	...	...	78XY	30	17.68Y
AFRICA																	
ALGERIA	77	16.9	990G	7.5	14.3FY	42	...	21	35	78X	45	39	4.0	55	26X	13	6.00
BENIN	74	3.1F	130F	7.2N	36.0Y	47D	23D	10D	11D	44XY	70B	53Y	25.0B	43B	11XY	39B	0.74Y
BOTSWANA	76	0.7	410	4.0	19.2	53	20	14	3	72X	95	32	3.0	60	12	22	0.30
BURUNDI	74	3.7F	110F	2.5	19.9Q	47R	41R	12R	10	20X	307	38	10.0	14	2X	18	1.0
CAMEROON	73	7.4F	280F	5.9	20.0	38Y	29Y	17Y	...	74	...	51DY	...	...	9	23CY	0.90CY
C.A.R.	74	1.8F	220F	3.0D	17.0D	56B	19B	...	...	79XY	25	69Y	...	18	8XY	27BY	0.21Y
CHAD	75	4.0	120	3.0	10.0	78	22	...	15	29XBXY	30	65BY	15.0	8	2XBXY	30	0.01BY
CONGO(B)	74	1.3F	510F	6.0	19.3	40	32	21	50?	133X	63	63	6.0	48	33X	22	3.40
EGYPT	76	38.2	310	5.9N	...	30	32	25	44	76	80	31	...	79	45	20	12.00
ETHIOPIA	76	28.0	100	2.8	15.8	28	25	10	7	21	...	50	...	63	8	34	...
GABON	74	0.5F	2,540F	5.0D	20.6D	25D	9D	11D	...	100Y	25C	46C	5.0	18A	31Y	21C	0.29Y
GAMBIA	76	0.5	170	3.3	11.5	46	25	6	10	27	90	33	...	92	13	25	...
GHANA	74	9.9F	590F	...	19.7Y	43Y	22Y	20YQ	...	60XY	62B	30Y	...	14B	35XY	16CY	1.09Y
GUINEA	76	4.7	180F	4.3NQ	...	30	31	30	...	30XY	64	45	12F	86	13X	26	4.00
IVORY COAST	74	6.7F	540F	6.3	24.7	38Y	37Y	18Y	9A	54Y	57A	45Y	...	...	17XY	25C	1.64Y
KENYA	76	13.8	240	5.9	26.0	67	23	10	40	80?	60?	34	6.0	30	18	27	1.0
LESOTHO	75	1.2	160	12.0P	23.0	49	18	20	40	85	50	52	7.0N	81	10	26	1.00
LIBERIA	75	1.5	410	2.4	13.2	27	15	20	73	58	...	35	2.0	...	12	26	1.10AY
MADAGASCAR	74	8.8F	200F	3.2	22.1	51	24	25	40	68X	30	63	15.0	48	9X	26	1.00
MALAWI	77	5.6	140	2.2	9.3	40	17	22	25	56X	21	61	5.0	9	5X	21	0.47
MALI	75	5.7F	90F	4.2M	33.0F	45F	37F	18F	10F	22XF	...	48F	9.5F	50F	6X	21	...
MAURITANIA	71	1.3F	320F	4.1Y	20.0Y	...	...	...	10A	17XY	...	22A	...	...	3XY	24A	...
MAURITIUS	76	0.9L	680	4.7	12.1	50	26	6	80C	94	99	24	4.5	90	45	32	1.50
MOROCCO	76	18.2	540	8.1	15.2	39R	48R	13R	28	65X	33	40	...	33	17X	22	4.00
NIGERIA	74	75.0F	340F	4.1DY	24.2DY	23Y	16Y	42Y	...	49XY	...	34DY	...	...	10XY	20CY	0.48Y
RWANDA	73	4.1F	100F	3.2C	28.0D	...	...	...	23	52	...	51	...	...	2	13	0.23CY
SENEGAL	76	5.1	390	3.3	26.0	46	34	20	10	32	...	49	10.0	20	10	21	1.5
SIERRA LEONE	73	3.0F	200F	3.4	23.4	31	36	30	15?	34X	45	32	4.0E	68	13X	21	0.53BY
SOMALIA	75	3.2	110	3.70	10.8Q	49Q	16Q	19Q	50?	34X	86	35	10.0	60	3	15	0.10
SUDAN	76	15.9	290	4.5	19.9	48	36	16	20	34	74	33	3.8	33	14	24	1.24
SWAZILAND	75	0.5	470	3.8	---	38	31	19	50	73	71	38	3.8	51	24	22	1.00
TANZANIA	76	15.1	180	6.6	17.4	42	21	12	80	93X	81	49	6.6	6	4X	19	0.34
TUNISIA	73	5.6F	730F	6.3	23.4	37	43	18	55	72	81	41	6.0	31	14	21	3.00
UGANDA	75	11.6	230	3.4DY	15.7DY	34EY	40EY	22EY	25A	53XY	...	34EY	...	14A	6XY	21A	0.56Y
UPPER VOLTA	77	5.8	118	3.4	23.9E	31	16	32	5C	13	23 F	51	24.0	19	2	25	1.0
ZAIRE	76	25.6	140	6.0	22.0	49	26	25	15	86X	44	42X	2.0	41	13X	27	1.00X
ZAMBIA	76	5.1	440	6.8	15.9	54	22	22	39	97X	80	49	7.0	21	16	23	1.50
CENTRAL AMERICA AND THE CARIBBEAN																	
BARBADOS	76	0.2	1,620	8.1	22.1	43	31	16	99	106X	99	21	3.0	99	94X	17	...
COSTA RICA	75	2.0	960	5.2B	22.7B	57B	25B	12B	89B	109XY	68	29B	3.0B	58B	52XY	25B	17.15Y
DOMINICAN REP.	72	4.7F	720F	3.0	13.9	42	24	22	51	80	17	54	3.0D	63	13.5	24	7.00
EL SALVADOR	75	4.0	450	3.6	23.8	61	5	22	60B	65C	...	39CY	...	39	13XC	21CY	4.35BY
GUATEMALA	73	6.3F	570F	1.9	16.0	55	23	14	47	64	26	35	3.0	69	8	25	4.09Y
HAITI	76	4.7	200	1.0	8.0	61	21	11	20B	25F	13	56U	3.0	62	4	...	0.7
HONDURAS	75	2.9	390G	4.2G	18.8G	62G	15G	19G	53	78	30	35	3.0	68	11	17	4.00
JAMAICA	74	2.0F	1,110F	7.1Y	20.2Y	39Y	32Y	15Y	86	111XY	...	39Y	...	...	54XY	19C	6.68DY
MEXICO	75	59.9	1,050	3.1DQ	12.0DQ	51Y	26Y	12Y	76	112XY	31	46Y	3.0	63	35XY	23A	8.97EY
NICARAGUA	74	2.3F	700F	2.5	14.2	61	13	13	57	65	21	37	2.0	93	17	24	7.00
TRINIDAD & T.	76	1.00	1,875E	3.4N	10.8Q	50E	25E	13E	90C	81	93	34	2.0Q	49	44	25	...
SOUTH AMERICA																	
BOLIVIA	76	5.8	315F	5.0	17.5F	...	...	...	38	17B	29D	24	5F	...	48	18D	...
BRAZIL	75	107.0	1,030	5.0	12.4	42E	20E	37E	64A	86G	...	27CY	...	...	26G	15CY	6.00B
CHILE	75	10.3	990	3.8RY	12.5RY	23Y	10Y	50Y	...	119XY	...	35Y	...	...	48XY	...	16.55Y
COLOMBIA	74	23.6F	580F	3.3DY	21.2DY	44DY	22DY	11Y	73	105XY	20	33Y	4.0	90	36XY	14A	6.67Y
ECUADOR	75	7.1	590	3.7D	27.7C	...	...	...	69	102XY	...	38C	...	...	38XY	14C	...
GUYANA	74	0.8F	510F	5.8N	14.7Q	47	35	14	83A	92X	39	33	6.0	19	62X	24	1.00
PARAGUAY	74	2.6F	580F	1.8	11.0	55	13	22	81	82	26	30	1.9	65	17	12	5.00
PERU	75	15.4	760	4.2DY	21.7DY	40Y	22Y	15Y	72	111XY	38	39DY	3.0	70	48XY	23DY	14.41Y
URUGUAY	75	2.8	1,300	2.5	15.3	46	34	20	94	93X	...	24	...	83	...	10	...
VENEZUELA	73	12.0F	2,280F	4.6	19.9	30Q	28Q	35Q	77A	81	...	33	2.4	...	33	...	12.63CY

Comparative Education Indicators
(November 5, 1978)

ANNEX 1
Table T-1
Page 2 of 2

	GNP/	% GNP	% TOTAL	% OF PUBLIC	EDUCATION	LITER-	PRI.	COMPLE-	PRI.	AV. PRI.	STU-	SCH. TEACH	PROGRESS-	SEC.	STU-	HIGHER
	CAPITA	DEVOTED	PUBLIC	EXP.	RECURRENT	ACY	ENROLL	TION	DENTS	SALARY IN	ION RATE	ENROLL	DENTS	ENROLL	PER	RATIO
	MARKET	(PUBLIC	DEVOTED	EXP	ALLOCATED	RATE	RATIO	RATE FOR	PER	RELATION	FROM PRI.	RATIO	PER	RATIO	ER	GROSS
YR: MILL.	PRICES	EXP.	TO	TO	(% OF	NET	PRI. SCH.	TEACH	TO GNP/	TO SEC.	NET	TEACH	GROSS			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)			

ASIA AND OCEANIA

AFGHANISTAN	77M	14.3	160G	1.8	11.6	47	19	15	12	29X	69	37	3.0G	62	8X	17	1.00
BANGLADESH	73	78.6F	90F	1.2	20.2	44Y	22Y	21Y	23D	56X	...	48D	...	...	23XD	28	...
CHINA (TAIWAN)	73	16.0F	930F	3.2	14.0	28	41	22	82	98C	94	40	14.0	84	61C	26	20.00C
INDIA	75	608.1	140	2.6VY	...	...	...	...	29B	65XY	...	43A	...	...	29XY	20AY	2.34EY
INDONESIA	74	132.1F	220F	3.9F	11.0F	69	21	10	60B	79X	43	30	2.0G	52	19X	14	2.00
IRAN	73	33.4F	1,680F	3.3	12.6	50B	18B	12B	50	77	74A	32	5.0B	80A	24	32	4.32CY
IRAQ	75	11.1	1,250	6.7C	16.3DR	...	...	...	26C	93XY	...	22	...	...	35XY	26C	8.47Y
JORDAN	73	2.7F	480F	7.0	8.8	52	15	21	59	91X	76	38	5.0	84	50X	22	4.0Y
KOREA	75	35.3	560	2.9	16.0R	65	33	2	92D	104X	98	52	3.5	77	55X	38	7.8
LEBANON	72	3.2F	1,070F	3.5	18.0	39	40	10	68	86	65	19	2.0	63	26U	25	23.00
MALAYSIA	76	12.6	860	6.7	26.0	42	34	15	60C	95	93	32	3.7	78	48	28	3.00
NEPAL	76	12.6F	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	33	7.0	...	0.4X	9	...
PAKISTAN	75	69.2	160	1.6	16.2	45	25	18	21	47X	50	39	2.0	...	17X	18	6.00
PAPUA N.G.	75	2.8	470	5.6	16.1	38	16	24	32	57?	73P	31	11.0	90	12X?	24	0.90?
PHILIPPINES	74	42.2F	380F	2.5	14.9	73	15	12	87	104X	...	34	15.0	...	46X	...	21.00
SINGAPORE	74	2.3F	2,450F	2.7Y	9.2Y	39Y	39Y	17Y	75A	109XY	72A	31Y	...	99A	44XY	24	7.68Y
SYRIA	75	7.4	720	3.6	6.9	39	25	26	53	89	70	35	2.0	92	45	21	12.00
THAILAND	73	41.9F	350F	4.0NF	20.7F	65	9	15	82	87X	93C	32	3.0 U	91C	21X	24	2.00
TURKEY	73	40.2F	900F	5.6CY	20.6CY	...	...	...	...	85Y	...	34Y	...	...	24Y	27DY	5.83Y
YEMEN	73	5.9F	200F	0.5	4.0	45P	21P	23P	10	15X	18	36	5.0	75	2X	19	0.05BY
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:	82	79	77	72	73	76	84	59	84	56	63	83	80	74
RANGE:	(0.5-12.0)	(3.8-33.0)	(25-96)	(5-47)	(2-41)	(3-98)	(14-133X)	(13-99)	(19-69)	(1.9-25.0)	(7-99)	(.4-80)	(9-39)	(.01-23.0)
QUANTILES: UPPER :	5.1	21.2	54	32	22	73	94	76	46	7	83	36	25	7.0
MEDIAN:	3.9	16.3	45	23	18	50	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=GDP	
?	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
			U=PUBLIC ONLY	YEARBOOK
			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:

- (1) "EDUCATION" AS DEFINED IN THE TABLE INCLUDES ALL EDUCATION AND TRAINING, FORMAL AND NON-FORMAL;
- (2) "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);
- (3) "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;
- (4) "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;
- (5) "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 WHOSE INCLUSION IS INDICATED BY FOOTNOTES ALSO CAN INFLATE THE RATIOS.

BARBADOS

FIRST EDUCATION PROJECT

Actual and Projected Enrollments and Teacher Requirements

Level & Type of Education	Enrollments, 1976 - 77				Teachers, 1976 - 77			School-Age Pop. Proj. 1983	Enrollments, 1985 - 86			Teachers, 1985 - 86		Add. Rqmnt. 1985 over 1976	
	Total	As % of Age-Group	% Female	% in Public Education	Total	Female as %	Tchr.-Stdnt. Ratio		Total	As % Age-Group	Public & as %	Rqd. on Post	Tchr.-Stdnt. Ratio 16/	Enrollments in Pub. Schls.	Tchrs. in Pub. Schls.
PRE-PRIMARY	2,375 ^{2/}	N.A.	...	100%)					5,000	N.A.	5,000(100%)	1,510	1:28.5	2,600	-
PRIMARY (Grades 1-6)	32,724	106% ^{3/}	49%	91%)	1,727 ^{11/}	70%	1:21(incl. tchs. on leave)	38,000 ^{13/}	98,000 ^{13/}	100%	36,000(95%)	(1,440 for pub.)		2,650	-
SECOND LEVEL															
Primary "tops" (Grades 7-9)	3,565	12%	39%	100%)					-			1,020			15/
All types second (Grades 7-11)	24,679	81%	53%	75% ^{12/})	1,098 ^{11/}	51%	1:17 ^{16/} (incl. tchs. on leave)		23,500		21,000(89%)	(934 pub.)	1:23	2,500	-
Second, 6th Form (Grades 12/13)	447	N.A.	48%	100%)					500 ^{14/}		500(100%)				
Polytechnic & other training	737 ^{5/}	2%	...	100%)	60 ^{19/}		N.A.		2,000 ^{17/}		2,000(100%)	130	1:15	1,200	70
Hotel School	205 ^{6/}		...	100%)											
Housecraft Center	40 ^{7/}		100%	100%)											
Total Second Level:	29,488	94% ^{8/}	51%	80%				26,500 ^{13/}	26,500	98%	23,500(89%)	1,150	1:20		
TERTIARY LEVEL															
Teacher Training	268 ^{9/}		66%	90%	22 ^{12/}		1:12		300 ^{17/}			25	1:12		
Community College	1,581		46%	100%	72 ^{20/}				1,500 ^{18/}			83	1:18		
Housecraft Center	20(tchr. trng.)		100%	100%					...			...			
University of West Indies	693 ^{10/}		45%	100%											
Other Universities	...														

N.A. = Not applicable.

... = Data not available.

Tchr.-Stdnt. = Teacher-Student.

1/ i.e., Government-owned and Government-maintained; hence excludes approved independent and private schools.

2/ Public only.

3/ Age-group 5 through 10.

4/ Day students only; another 1,000 evening part-time students.

5/ Another 268 in evening classes.

6/ Age-group 11 through 15, but 80% if calculated in terms of 11 through 16 and including enrollments in grades 12/13.

7/ About 4,200 in approved independent and 1,800 in private schools.

8/ Not including 170 in in-service course.

9/ Over 50% in evening classes.

10/ Barbadians in the U.W.I.; the Barbados campus has an enrollment of 1,065 and includes 41 in the School of Education.

11/ In public schools only; of these 274 primary teachers and 140 secondary teachers are on leave of absence for further training/higher studies.

12/ Full-time teachers only; also responsible for 170 in-service course participants.

13/ Allowance (2,000) for Barbadian children from outside Barbados returning from overseas for schooling in Barbados.

14/ Also 350 in private schools with a 1:17 ratio; full-time equivalency not available.

15/ Assuming 80 on leave of absence.

16/ Including principals.

17/ Including 100 in-service courses.

18/ An additional 1,000 in evening courses.

19/ Assuming that 34 part-time teachers are equivalent to 13 full-time teachers.

20/ Assuming that 74 part-time teachers are equivalent to 25 full-time teachers.

Source: 1976-77 data compiled from MOE statistical materials, projections by mission on basis of policy objectives.

November 20, 1978

BARBADOS

ANNEX 1
Table T-3

FIRST EDUCATION PROJECT

Primary Education: Enrollments in Government Schools by Grade and Sex, and Grade-to-Grade Flow Rates^{1/}

1972/73 to 1976/77

Grade	1972/73			CPR %	1973/74			CPR %	1974/75			CPR %	1975/76			CPR %	1976/77		
	M	F	MF		M	F	MF		M	F	MF		M	F	MF		M	F	MF
Class IV Grade 6	2,661	2,459	5,120	86.9	2,565	2,366	4,931	88.4	2,501	2,468	4,969	88.3	2,469	2,460	4,929	98.9	2,597	2,409	5,006
Class III Grade 5	2,882	2,790	5,672	100.4	2,829	2,795	5,624	99.2	2,831	2,751	5,582	99.1	2,617	2,446	5,063	98.9	2,584	2,373	4,957
Class II Grade 4	2,858	2,746	5,604	99.0	2,858	2,768	5,626	99.4	2,606	2,503	5,109	99.4	2,579	2,434	5,013	99.0	2,529	2,492	5,021
Class I Grade 3	2,880	2,801	5,681	99.5	2,630	2,509	5,139	102.0	2,604	2,439	5,043	100.5	2,540	2,530	5,070	101.5	2,447	2,295	4,742
Infants B Grade 2	2,616	2,548	5,164	58.9	2,561	2,384	4,945	105.5	2,536	2,507	5,043	88.6	2,370	2,302	4,672	88.2	2,302	2,304	4,606
Infants A Grade 1	4,284	4,114	8,398		2,454	2,325	4,779		2,718	2,556	5,274		2,698	2,522	5,220		2,835	2,722	5,557
Reception	-	-	-		-	-	-		695	738	1,433		890	1,058	1,948		1,160	1,215	2,375
Total	18,181	17,458	35,639		15,897	15,147	31,044		16,491	15,962	32,453		16,163	15,752	31,915		16,454	15,810	32,264

Source: Compiled from annual Ministry of Education Statistics by UNESCO Project Identification Mission, 1978.

^{1/} The crude flow rate (CPR) is calculated by dividing the total enrollment in a grade by the enrollment in the next lower grade in the previous year.

November 20, 1978

BARBADOS

FIRST EDUCATION PROJECT

ANNEX 1
Table T-4

Enrollments in Secondary Schools by Age, Sex and Grade^{1/}

October 1976

Form/Grade	Sex	Enrollments by Age											Total
		9	10	11	12	13	14	15	16	17	18	19 and over	
Form I/7	M	5	13	2,234	188	19	6	-					2,465
	F	-	25	2,252	195	22	2	1					2,497
Form II/8	M			150	2,027	309	50	6	1				2,543
	F			156	2,207	246	59	3	1				2,672
Form III/9	M		5	10	103	1,983	314	116	25	3			2,559
	F		5	10	151	1,902	472	164	32	6			2,742
Form IV/10	M		2	-	5	70	1,260	299	184	38	10		1,868
	F		-	1	5	96	1,615	377	184	40	12		2,330
Form V Lower/11	M					-	41	397	285	153	62	12	950
	F					4	53	803	462	210	94	7	1,633
Form V Upper/11-12	M					-	14	381	522	244	16	-	1,177
	F					1	20	387	596	222	16	1	1,243
Sub-Total Forms I-V	M	5	20	2,394	2,323	2,381	1,685	1,199	1,017	438	88	12	11,562
	F	-	30	2,419	2,558	2,271	2,221	1,735	1,275	478	122	8	13,117
Form VI Lower /12-13	M							8	75	42	2		127
	F							17	102	5	-		124
Form VI Upper /13-14	M								1	60	46	-	107
	F								6	73	9	1	89
Sub-Total Form VI	M							8	76	102	48	-	234
	F							17	108	78	9	1	213
Total	M	5	20	2,394	2,323	2,381	1,685	1,207	1,093	540	136	12	11,796
	F	-	30	2,419	2,558	2,271	2,221	1,752	1,383	556	131	9	13,330

Source: Compiled from Ministry of Education Statistics 1976/77.

1/ All schools, government owned and maintained, approved independent and private.
November 20, 1978

BARBADOS
FIRST EDUCATION PROJECT

ANNEX 1
Table 2.5

Public and Private Expenditures in Education
(in BDS\$ Millions)

	1975/76			1976/77			1977/78 ^{4/}			1978/79 ^{5/}		
	Recurrent	Capital	Total	Recurrent	Capital	Total	Recurrent	Capital	Total	Recurrent	Capital	Total
A. PUBLIC SECTOR												
Ministry of Education	43.1	6.8	49.9	51.5	9.8	61.3	56.1	7.8	63.9	63.5	8.8	72.3
Others ^{1/}	1.7	-	1.7	1.8	-	1.8	1.9	-	1.9	2.0	-	2.0
Subtotal	44.8	6.8	51.6	53.3	9.8	63.1	58.0	7.8	65.8	65.5	8.8	74.3
B. Private Contributions to Public Schools ^{2/}	7.6	-	7.6	8.0	-	8.0	9.0	-	9.0	9.0	-	9.0
C. PRIVATE SECTOR ^{3/}	4.0	-	4.0	4.3	-	4.3	4.8	-	4.8	4.8	-	4.8
TOTAL	56.4	6.8	63.2	65.6	9.8	75.4	71.8	7.8	79.6	79.3	8.8	88.1
A as % of Public Sector Expenditures	24.3 (184.4)	14.1 (49.3)	22.2 (232.7)	23.7 (225.1)	16.2 (60.4)	22.1 (285.5)	21.6 (258.2)	9.3 (83.7)	18.7 (351.9)	22.0 (293.1)	10.4 (84.4)	19.4 (382.5)
A as % of GNP (at market prices)			7.0 (742.4)			8.1 (775.3)			7.4 (891.1)			7.3 (1 011.2)
A+B+C as % of GNP			8.5			9.7			8.9			8.7

^{1/} Ministry of Health (Nurse Training), Public Service Divisions (Training of Civil Servants)

^{2/} Bank estimates based on a survey of some existing private schools and expenditures of children in public schools

^{3/} Excluding government grants which are included under Ministry of Education

^{4/} Preliminary figures

^{5/} Budget estimates

Sources: Accounts and Statements of the Accountant General (1975-78), Budget Estimates 1978/79 Ministry of Finance

November 20, 1978

FIRST EDUCATION PROJECT

Capital Cost Estimates (BDS\$'000)

	Net Area (m ²)	Civil Works		Furniture	Equipment	Technical Assistance	Total Costs	
		Site Works	Buildings				(BDS\$'000)	(US\$'000) ^{2/}
A.1 PRIMARY SCHOOLS								
1. Eden Lodge	1,655	182.5	1,216.6	121.6	24.0	-	1,544.7	772.4
2. Grace Hill	1,655	182.5	1,216.6	121.6	24.0	-	1,544.7	772.4
3. Edgemoor-Mont	1,655	182.5	1,216.6	121.6	24.0	-	1,544.7	772.4
4. Pine-Willey	1,655	182.5	1,216.6	121.6	24.0	-	1,544.7	772.4
5. St. Ann's	485	53.4	356.4	35.6	12.0	-	457.4	228.7
6. St. Luke's	920	101.4	676.2	67.6	16.0	-	861.2	430.6
7. Sharon	920	101.4	676.2	67.6	16.0	-	861.2	430.6
8. Tabor	920	101.4	676.2	67.6	16.0	-	861.2	430.6
9. St. Saviour's	920	101.4	676.2	67.6	16.0	-	861.2	430.6
10. St. George's (M)	1,260	138.9	926.1	92.6	20.0	-	1,177.6	588.8
Sub-total	12,045	1,327.9	8,853.7	885.0	192.0	-	11,258.6	5,629.5
A.2 SECONDARY SCHOOLS^{3/}								
1. Alexandra (G)	860	57.1	713.4	71.3	140.0	-	981.8	490.9
2. Coleridge-Parry (B)	745	49.4	617.6	61.8	160.0	-	888.8	444.4
3. Alleyne (M)	1,005	66.7	833.3	83.3	180.0	-	1,163.3	581.7
4. W. St. Joseph's (M)	2,285	151.9	1,898.9	189.9	274.0	-	2,514.7	1,257.4
5. The Lodge (B)	725	48.1	601.0	60.1	112.0	-	861.2	425.6
6. Parkinson's	1,080	71.7	895.9	89.6	182.0	-	1,239.2	619.6
Sub-total	6,700	444.9	5,560.1	556.0	1,078.0	-	7,639.0	3,819.6
7. Trent	-	-	-	260.0	600.0	-	860.0	430.0
Sub-total	4,700	444.9	5,560.1	816.0	1,678.0	-	8,499.0	4,249.6
A.3 TEACHER EDUCATION								
1. Ediston ITC	790	43.4	542.0	90.1	360.0	-	1,035.5	517.8
A.4 PROJECT ADMINISTRATION								
1. MOE Project Unit	-	-	-	14.0	36.0	800.0	850.0	425.0
B. INDUSTRIAL TRAINING								
1. RIMAP	392	20.1	313.6	50.8	93.3	100.0	587.8	293.9
BASE COSTS^{1/}								
Physical Contingencies	19,927	1,841.3	15,269.4	1,855.9	2,364.3	900.0	22,230.9	11,115.8
(%)		184.1	1,526.9	185.6	236.4	90.0	2,223.0	1,111.4
(10)		(10)	(10)	(10)	(10)	(10)	(10)	(10)
Base Cost plus Physical Contingencies		2,025.4	16,796.3	2,041.5	2,600.7	990.0	24,453.9	12,227.4
Price Contingencies		329.4	3,585.2	205.5	232.9	147.0	4,500.0	2,249.5
(%)		(16.26)	(21.34)	(10.06)	(8.95)	(14.84)	(18.4)	(18.4)
TOTAL PROJECT COSTS		2,354.8	20,381.5	2,247.0	2,833.6	1,137.0	28,953.9	14,476.9
Foreign Exchange Component								
		824.2	12,388.6	1,303.0	2,550.0	853.1	17,918.9	8,959.5
		(35.0)	(60.8)	(58.0)	(90.0)	(75.0)	(61.88)	(61.88)

^{1/} Expressed in prices as of January 1, 1979.

^{2/} US\$1.00 = BDS\$2.00 as of January 1, 1979

^{3/} G=Girls, B=Boys, M=Mixed

November 20, 1978

BARBADOS

FIRST EDUCATION PROJECT

The Project Secondary Schools

	<u>Present Enrollment</u>				Teacher- Student Ratio	<u>Proposed in Full Operation</u>				Teacher- Student Ratio	Teacher Rqrmts. Under Existing Tchr.-Stdnt. Norm
	<u>Boys</u>	<u>Girls</u>	<u>Total</u>	<u>Teachers</u> ^{1/}		<u>Enrollments</u>			<u>Teachers</u> ^{1/}		
						<u>Boys</u>	<u>Girls</u>	<u>Total</u>			
Alexandra	-	474	474	24	1:20	-	875	875	36	1:24	44
Coleridge & Parry	483	-	483	22	1:22	875	-	875	36	1:24	44
Ailleyne	243	246	489	27	1:18	435	440	875	36	1:24	44
West St. Joseph's	492	536	1,028	57	1:18	610	615	1,225	51	1:24	61
The Lodge Boys ^{2/}	594	-	594	32	1:19	800	-	800	35	1:23	40
Parkinson's	942	376	1,318 ^{4/}	63	1:21	615	610	1,225	51	1:24	61
Trent ^{3/}	<u>1,225</u>	-	<u>1,225</u>	<u>(60)</u> ^{5/}	<u>1:20</u>	<u>610</u>	<u>615</u>	<u>1,225</u>	<u>51</u>	<u>1:24</u>	<u>61</u>
TOTAL:	<u>3,979</u>	<u>1,632</u>	<u>5,611</u>	<u>285</u>	1:20	<u>3,945</u>	<u>3,155</u>	<u>7,100</u>	<u>296</u>	1:24	355
If principals included:				292	1:19				303	1:23.4	

^{1/} Excluding principal; full-time equivalency.

^{2/} Has a 6th form (i.e., Grades 12 and 13).

^{3/} Equipment and furnishing only: still under construction.

^{4/} About 900 only on campus which the project is concerned with.

^{5/} Assuming 1:20 ratio as for other schools' average.

November 20, 1978

BARBADOS

FIRST EDUCATION PROJECT

Accommodation Proposals for Construction, Equipment, and Furniture

Project Secondary Schools

School	Class- Rooms	Science Labs.	Demonstr. Amph- theater	Demonstr. Lab.	Soc.Stud. Room	Art Room	Crafts Room	Commerce Room	Tech. Drawing	Indust. Arts	Home- Crafts	Library	Agr.Sci. Lab.	Agr.Sci. Shed	Food Serv. Area	Music Room	Admin. Area
Alexandra Girls	-	3	1	-	1	1	1	1	-	-	4/	-	-	-	-	1	-
Cateridge & Parry Boys	1	3	1	-	1	1	1	1	-	2/	-	-	-	-	-	-	-
Alleyne Mixed	-	2	1	1	1	1	1	1	1	-	2 5/	-	-	-	-	-	-
West St. Joseph's Mixed	10	3	1	1	1	1	1	1	1	3/	-	1	1	1	-	1	yes
The Lodge Boys	3	-	-	-	1	1	1	1	1	1/	-	-	-	-	-	-	-
Parkinson's Mixed	7	1	1	-	1	1	1	1	-	-	-	1	1	-	-	-	-
TOTAL:	18	15	5	2	6	6	5	6	3	3	3	2	2	1	1	2	-
Front (equip. & 2/ furniture only)	(24)	(3)	(1)	(1)	(2)	(1)	(1)	(1)	(1)	(3)	(3)	(1)	(1)	(1)	(1)	(1)	(yes)

1/ In addition to above, existing practical spaces are re-equipped up to standard; and general audio-visual aids, administration and P.E. equipment are provided.

2/ Equipment includes an amount for a stock of textbooks.

3/ Machine shop.

4/ For dress-making.

5/ 1 for cooking and 1 for dress-making.

November 20, 1978

BARBADOS

FIRST EDUCATION PROJECT

Technical Assistance for BIMAP

	<u>Total</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
	-----	man-months	-----	-----
<u>Fellowships</u>				
Specialists in supervisor and in-plant training (3 x 4 months)	12	-	8	4
Specialist in middle-level management (1 x 3 months)	3	3	-	-
Specialist in general management and senior staff (1 x 3 and 1 x 4 months)	7	4	3	-
Specialists in small-scale enterprises (2 x 4 months)	<u>8</u>	<u>4</u>	<u>4</u>	<u>-</u>
	30	11	15	4

Brief Terms of Reference

I. Fellowships in Supervisory and In-Plant Training

The purpose is to give Barbadian professionals some background in supervisory and in-plant training together with other experiences that could be useful in the consideration of further action in Barbados.

The fellows would visit institutions, consulting firms and industries (selected by their success in implementing in-plant training schemes) in order to observe techniques such as:

- (a) determination of training needs for particular industries;
- (b) training planning;
- (c) costs;
- (d) organization of training units in sizable firms;

- (e) training for small enterprises (working with real cases);
- (f) basic pedagogical principal for in-plant training;
- (g) elaboration of curricula, teaching materials, and audio-visual aids;
- (h) supervisory training (type of courses, techniques for its development); and
- (i) instructor training.

(Possible countries: UK, USA, Canada, Trinidad, etc.)

II. Fellowship in Middle-level Management Training

The purpose of this fellowship is to expose a Barbadian professional to some experience in middle-level management training in other countries. This staff member would visit some institutions and universities which provide middle-level management training to study:

- (a) training techniques for middle-level management;
- (b) development of curricula and teaching aids;
- (c) some specific areas, such as organization, administration, production planning and control, industrial engineering, and retail management.

(Possible countries: UK, USA, Canada, Trinidad)

III. Specialists in General Management and Senior Staff

The purpose is to expose senior staff and a specialist in general management training to new ideas and experiences in universities, productivity centers and institutions involved in this activity. Some of the subject matters would be:

- (a) training techniques for management;
- (b) development of curricula and teaching aids;
- (c) some specific area, such as organization, administration, marketing, finance, etc.

(Possible countries: UK, USA, Canada, Switzerland, etc.)

IV. Specialists in Small-scale Enterprises

The purpose is to give further training to the two specialists who will provide technical assistance to small-scale enterprises. The persons should visit specialized institutions providing technical assistance to small-scale industries. Most of the time should be devoted to practical work in conjunction with the institutions providing technical assistance to the small-scale industries. In addition, the fellows may attend seminars providing a more theoretical information base.

(Possible countries: the Netherlands, Belgium, Sweden, Japan, etc.)

November 20, 1978

BARBADOS

FIRST EDUCATION PROJECT

The Project Unit

(Under the direction of a full-time Project Manager, who will be responsible for the execution of the project and who will report directly to the Permanent Secretary of the MOE)

<u>A. Personnel Required</u>	<u>Possible Source of Funding</u>
1. Architect (presently on post and funded by the CFTC; contract expires in June 1979)	Additional funding for three years is being requested by Government from CFTC.
2. Structural Engineer (part-time)	Until January 1979, services available from the engineer provided by CFTC. Replacement to be made available from within the Barbadian Civil Service (BCS); Government funding of replacement.
3. Architect	To be seconded by Government from the Ministry of Communications and Works (MCW) for 3 man-years. Government funding.
4. Architect as full-time appointment to MOE to carry on after project	Government funding.
5. Quantity Surveyor as full-time appointment to MOE to carry on after project	Initial project financing of up to 3 man-years--US\$100,000.
6. Draftsmen from within the BCS.	Government funding.
7. Superintendents or clerks of works or the equivalent from within the BCS	Government funding.
8. Secretarial and other ancillary staff	Government funding.
9. Reserve funds in case of difficulty in mobilizing BCS personnel	Project financing US\$100,000.
10. Architectural consultants for the Project Unit and the BIMAP component	Project financing US\$150,000.
11. Short-term consultants for Erdiston Teacher Training College or UWI	Project financing US\$50,000.
<u>B. Physical Resources</u>	
1. Government will provide adequate premises (already done).	
2. Equipment and furniture to be project-funded (US\$25,000).	

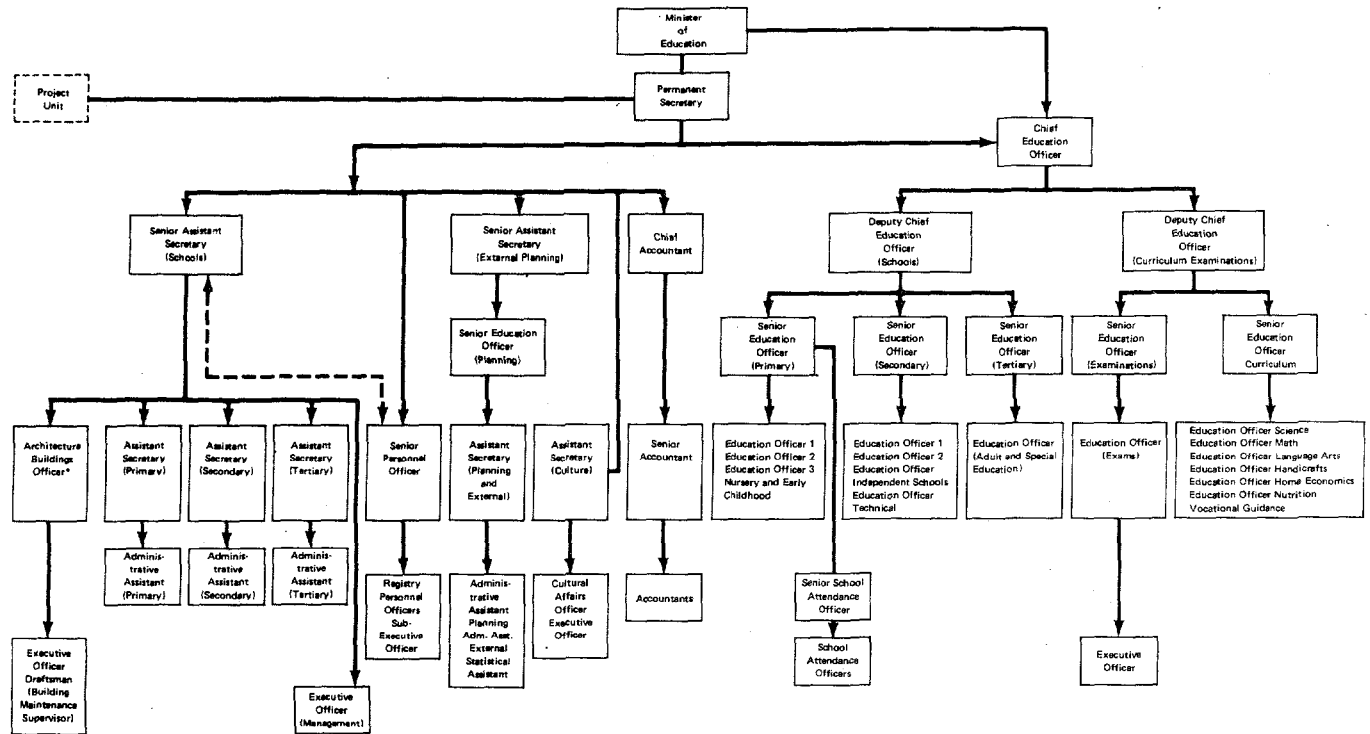
BARBADOS
FIRST EDUCATION PROJECT
Disbursement Schedule
(US\$'000)

<u>Fiscal Year</u>	<u>Semester</u>	<u>Disbursements</u>	<u>Accumulated Disbursements</u>	<u>Undisbursed Balance 1/</u>
1979	1	-	-	-
	2	42.9	42.9	8,957.1
1980	1	414.1	457.0	8,543.0
	2	403.3	860.3	8,139.7
1981	1	1,311.3	2,171.6	6,828.4
	2	1,981.5	4,153.1	4,846.9
1982	1	924.0	5,077.1	3,922.9
	2	1,353.7	6,430.8	2,569.2
1983	1	2,104.1	8,534.9	465.1
	2	465.1	9,000.0	-

1/ At the end of each semester.

November 20, 1978

BARBADOS
FIRST EDUCATION PROJECT
Organization Chart - Ministry of Education and Culture - 1978



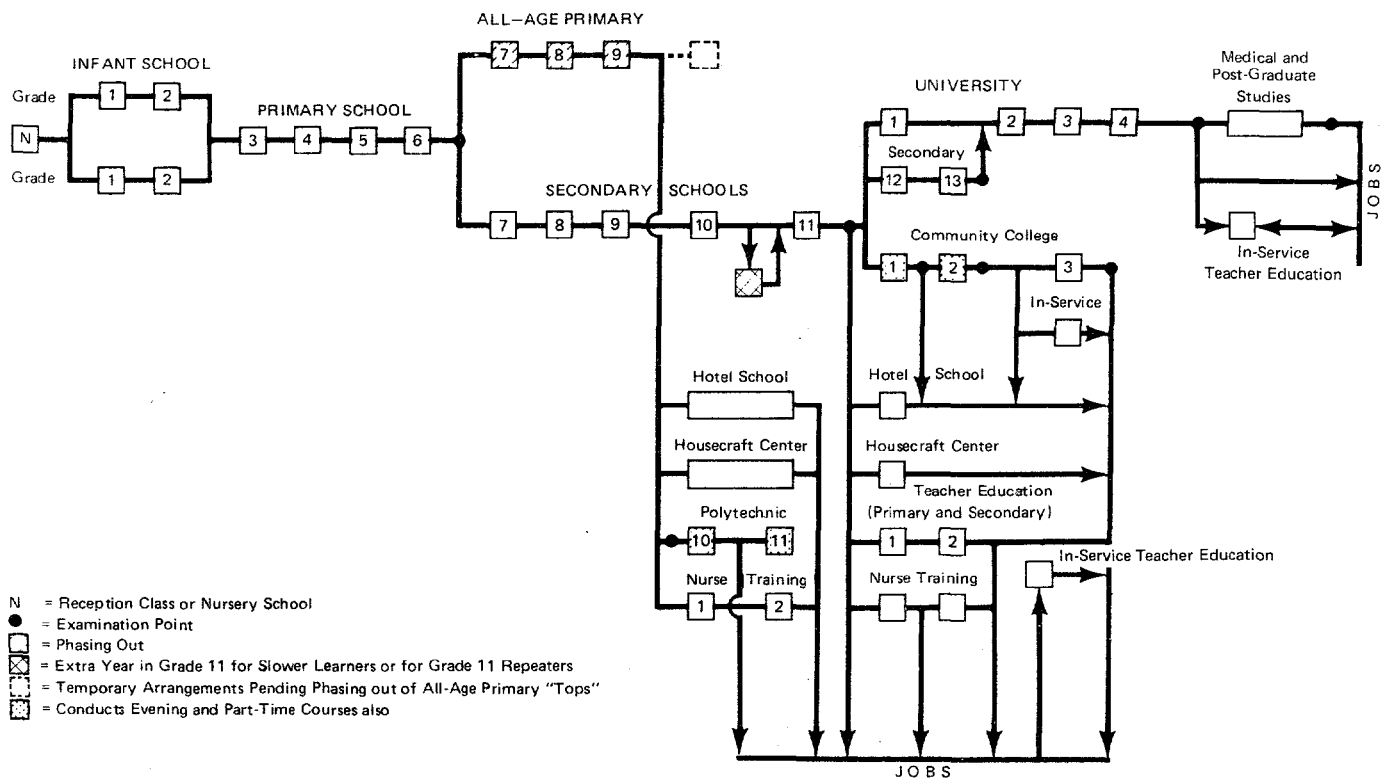
*School Buildings and Maintenance Section will be exclusively responsible for maintenance.

Project Unit will be established for the implementation of this project.

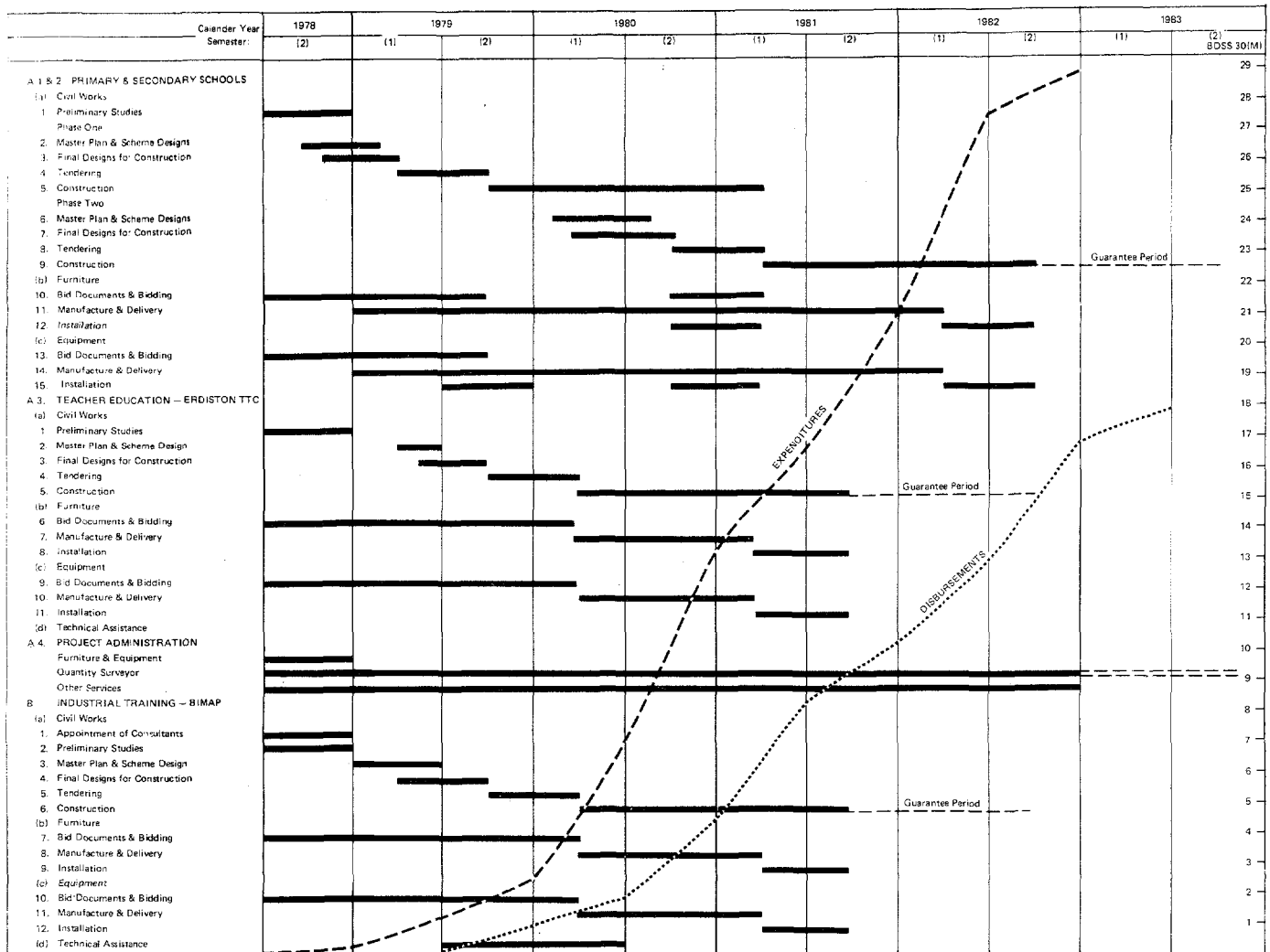
Source: Ministry of Education and Culture.

BARBADOS
FIRST EDUCATION PROJECT
Structure of the Formal Education System, 1978

AGE: 5/6 6/7 7/8 8/9 9/10 10/11 11/12 12/13 13/14 14/15 15/16



BARBADOS
FIRST EDUCATION PROJECT
Project Implementation Schedule



August 1978

BARBADOS

FIRST EDUCATION PROJECT

Selected Documents and Data Available in the Project File

A. Selected Sector Reports

- A1. Barbados: Prospects for Educational Development: UNESCO, 1974
- A2. Barbados: Prospects for Educational Development: UNESCO, 1978
- A3. Economic Memorandum on Barbados: World Bank, March 31, 1978
- A4. Draft Development Plan - Education: Barbados, 1978

B. Selected Project-Related Reports and Studies

- B1. The Government Request: Barbados, May 1978
- B2. Erdiston College: Development Proposals: Barbados, May 1978
- B3. Erdiston - Educational Development Project: Barbados, July 1978

C. Selected Working and Implementation Papers

(Prepared by the World Bank Appraisal Mission)

- C1. Demographic Projections - Selected School-Age Groups
- C2. Educational and Architectural Working Papers - Project
Primary Schools
- C3. Educational and Architectural Working Papers - Project
Secondary Schools
- C4. Educational and Architectural Working Papers - Erdiston
Teacher College
- C5. Working Papers - BIMAP

