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*LN. 2688-BHA*

Report No. 5905-BAR

**STAFF APPRAISAL REPORT**

**BARBADOS**

**SECOND EDUCATION AND TRAINING PROJECT**

April 17, 1986

Projects Department  
Latin America and the Caribbean Regional Office

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BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

BASIC DATA 1/

|  |                     |
|--|---------------------|
| Land Area:   | 431 sq. km.         |
| Population: <u>2/</u>                              |                     |
| Total Population (mid 1984)                        | 252,000             |
| Density  | 580 per sq. Km.     |
| Average Annual Growth (1974-84)                    | 0.3%                |
| Literacy   | 99%                 |
| Academic Year:                                     | September to June   |
| Enrollment (1984/85)                               |                     |
| Total Primary Enrollment                           | 30,780              |
| Of which Male:                                     | 50.4%               |
| Female:  | 49.6%               |
| As percentage of age group (5-11):                 | 98.0%               |
| Total Secondary Enrollment                         | 28,162              |
| Of which Male:                                     | 50.4%               |
| Female:  | 49.6%               |
| As percentage of age group (12-16):                | 95.0%               |
| GNP Per Capita (1984)                              | US\$ 4,340          |
| Fiscal Year:                                       | April 1 to March 31 |
| Government Recurrent Expenditures on Education:    |                     |
| As Percentage of Government Expenditures<br>(1984) | 20%                 |
| As Percentage of GDP                               | 8%                  |
| Currency Exchange Rate:                            | US\$1.00 = BD\$2.00 |

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1/ See Annex 1 for comparative educational data.

2/ Source: Barbados Statistical Service.

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This report is based on the findings of an appraisal mission which visited Barbados in May/June 1985. The appraisal mission comprised Messrs. Leonardo M. Concepcion (Architect, mission leader), Wesley W. Hobbs (Technical Educator, consultant), Christopher Dougherty (Economist, consultant) and Ms. Himelda Martinez (General Educator).

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MAP

## BARBADOS

### SECOND EDUCATION AND TRAINING PROJECT

#### GLOSSARY

|           |  |
|-----------|--|
| BCC       | - Barbados Community College   |
| BDS\$     | - Barbados Dollar  |
| BIMAP     | - Barbados Institute of Management and Productivity                                    |
| CXC       | - Caribbean Examination Council  |
| ETTC      | - Erdiston Teacher Training College  |
| FTE       | - Full Time Equivalent   |
| ICB       | - International Competitive Bidding  |
| IDB       | - Inter-American Development Bank  |
| LCB       | - Local Competitive Bidding  |
| MOE       | - Ministry of Education and Culture  |
| MOL       | - Ministry of Labor  |
| MRSU      | - Manpower Research and Statistics Unit  |
| NTB       | - National Training Board  |
| PIU       | - Project Implementation Unit  |
| SJPP      | - Samuel Jackman Prescod Polytechnic   |
| SOE       | - Statement of Expenditure   |
| TA        | - Technical Assistance   |
| UNESCO/CP | - United Nations Educational, Scientific and Cultural Organization/Cooperative Program |
| USAID     | - United States Agency for International Development                                   |
| UWI       | - University of the West Indies  |

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

LOAN AND PROJECT SUMMARY

- Borrower : Government of Barbados
- Beneficiaries: Ministry of Education and Culture  
National Training Board/Ministry of Labor  
Training Administration
- Loan Amount : US\$10.0 million equivalent
- Terms : 15 years including 3 years of grace, at the standard variable interest rate.
- Project Description : The Project covers 90 percent of the Government's five-year investment plan in the education and training sector and is financed on a parallel basis by the Bank and the IDB. The objectives of the Project are to:
- (1) Improve the quality and cost effectiveness of primary and secondary education by: (a) amalgamating 21 small, uneconomic primary schools into 10 larger schools to obtain higher student-teacher ratios; (b) upgrading two existing secondary schools, equipping of a third existing secondary school and establishing one new secondary school with 1,200 student places; (c) providing technical assistance (44 staff months of fellowships and 36 staff months of specialist services) and training of about 1,500 teachers to improve (i) teaching of reading and writing in primary schools, (ii) textbook procurement and distribution systems, and (iii) testing and measurement practices; and (d) supporting a study to rationalize the teaching of special subjects in secondary schools;
  - (2) Improve the efficiency, quality, and industrial relevance of technical and vocational training by: (a) expanding the operations of the National Training Board through the construction, equipping and furnishing of two new skills training centers and upgrading one existing center; (b) upgrading and expanding of training facilities at the Samuel Jackman Prescod Polytechnic and the Barbados Community College and improving efficiency in the use of existing facilities; (c) improving the data processing capability of the Manpower Research and Statistics Unit; (d) upgrading the training programs of the Training Administration; and (e) providing technical assistance (39 staff months of specialist services and 188 staff months of fellowships) for the upgrading of course syllabi, improvements in administrative and financial management procedures, strengthening of the industrial advisory committees, industrial job analysis and follow up of on-the-job performance of graduates.

(3) Strengthen the institutional capacity to manage and plan the education and training system by financing: (a) technical assistance (26 staff months of specialist services and 26 staff months of fellowships) and training of 150 managers and 500 school teachers for improvement in (i) education planning and educational management, (ii) budgeting processes, (iii) school supervision practices, (iv) curriculum implementation strategies, and (v) educational materials production; (b) a study on the formulation of measures to achieve cost savings and greater efficiency in the utilization of education facilities and resources, as well as to address the issue of the additional recurrent costs that are expected to be generated under the Project; and (c) the provision of adequate pedagogical and administrative facilities for the Ministry of Education and Culture.

Risks:

No significant risks are associated with the technical implementation of the Project. There are, however, potential risks: (a) economies in primary and secondary education may not be achieved unless the Government maintains a freeze on the hiring of new teachers in the light of the decreasing population growth rate; and (b) difficulties may be encountered in meeting the incremental recurrent costs of the Project. The latter risk would be minimized by the introduction of cost reduction measures brought out by the study financed by the Project, the sharing of expensive facilities among schools and the adoption of measures to rationalize the selection of optional subjects taught in secondary schools.

Estimated Cost a/

| <u>Project Component</u>             | US\$ Million |                |              |
|--------------------------------------|--------------|----------------|--------------|
|                                      | <u>Local</u> | <u>Foreign</u> | <u>Total</u> |
| Primary Schools                      | 4.29         | 3.57           | 7.86         |
| Secondary Schools                    | 3.51         | 3.31           | 6.82         |
| S. J. P. Polytechnic                 | 0.03         | 0.23           | 0.26         |
| Barbados Community College           | 2.14         | 2.79           | 4.93         |
| Institutional Strengthening of MOE   | 1.84         | 1.82           | 3.66         |
| NTB Skills Training Centers          | 1.52         | 1.76           | 3.28         |
| Manpower Research Unit               | 0.03         | 0.09           | 0.12         |
| Training Administration              | 0.05         | 0.18           | 0.23         |
| Project Implementation Unit          | <u>1.82</u>  | <u>0.12</u>    | <u>1.94</u>  |
| <u>Base Cost (March 1986 Prices)</u> | 15.23        | 13.87          | 29.10        |
| Physical Contingencies               | 0.84         | 0.71           | 1.55         |
| Price Contingencies                  | <u>4.38</u>  | <u>2.67</u>    | <u>7.05</u>  |
| <u>Total Project Cost</u>            | <u>20.45</u> | <u>17.25</u>   | <u>37.70</u> |

a/ Net of Taxes and Duties estimated at US\$3.4 million.

Financing Plan

|                   | <u>Local</u> | <u>US\$ Million</u><br><u>Foreign</u> | <u>Total</u>  | <u>% of</u><br><u>Total</u> |
|-------------------|--------------|---------------------------------------|---------------|-----------------------------|
| Government        | 10.70        | 0.00                                  | 10.70         | 28.4%                       |
| IDB               | 8.25         | 8.75                                  | 17.00         | 45.1%                       |
| IBRD              | 1.50         | 8.50                                  | 10.00         | 26.5%                       |
| <b>Total</b>      | <b>20.45</b> | <b>17.25</b>                          | <b>37.70</b>  | <b>100.0%</b>               |
| <b>% of Total</b> | <b>54.2%</b> | <b>45.8%</b>                          | <b>100.0%</b> |                             |

Disbursements:

|                   | <u>Bank Fiscal Year</u><br><u>(US\$ Million)</u> |             |              |              |              |              |              |               |
|-------------------|--|-------------|--------------|--------------|--------------|--------------|--------------|---------------|
|                   | <u>1986</u>                                      | <u>1987</u> | <u>1988</u>  | <u>1989</u>  | <u>1990</u>  | <u>1991</u>  | <u>1992</u>  | <u>1993</u>   |
| Annual            | 0.15   | 0.81        | 2.06         | 2.79         | 2.24         | 1.21         | 0.53         | 0.21          |
| Cummulative       | 0.15   | 0.96        | 3.02         | 5.81         | 8.05         | 9.26         | 9.79         | 10.00         |
| <b>% of Total</b> | <b>1.5%</b>                                      | <b>9.6%</b> | <b>30.2%</b> | <b>58.1%</b> | <b>80.5%</b> | <b>92.6%</b> | <b>97.9%</b> | <b>100.0%</b> |

Rate of Return: Not applicable

## CHAPTER I. THE EDUCATION AND TRAINING SECTOR

### Overall Development Context

1.01 During the 1960s and 1970s Barbados made substantial progress in expanding its economy and diversifying its economic base. Growth averaged 5% a year, with tourism, manufacturing and agriculture comprising the major sources of that growth. With its low rate of population increase, Barbados saw its living standards rise as per capita income advanced at the satisfactory rate of 2% a year. The country enjoyed high levels of literacy, a relatively equitable pattern of income distribution, and generally good standards of health, education, and social services.

1.02 In the early 1980s, the economy encountered serious difficulties as a result of the 1981-83 world recession, marketing and payment difficulties within the Caribbean Common Market, and the accelerated strengthening (1983-84) of the US dollar to which the Barbados dollar (BDS\$) is pegged at the fixed rate of 2:1. GDP declined by 2.6% in 1981 and 4.3% in 1982. Overall unemployment rose from 11% in 1981 to 18% in 1984, with unemployment for women averaging 23% in all sectors.

1.03 The Bank's most recent analysis of the economy (Barbados Development Challenges, April 1985) concludes that although the economy has now begun to recover and in 1984 demonstrated a positive growth rate of 2.4%, the serious difficulties of the early 1980s revealed structural problems whose correction will require new policies and programs. Specifically, the report states that Barbados must adjust to a changed development environment. The steady growth of the 1960s and 1970s was the result of a demand-led environment, with tourist facilities filling as fast as they can on-stream, with agricultural products (specifically sugar) sold largely under protected markets, and with manufactured goods protected within the Caribbean Common Market. Now, with greater competition from all parts of the world for tourists, increased costs and decreased prices for sugar and erection of protectionist barriers between trading partners in the Caribbean, Barbados must adjust to a different environment. The country must formulate policies and programs to address the multiple challenges of restructuring productive activities, restoring international competitiveness and reorienting manufacturing to extraregional markets.

### Overview of Education and Training

1.04 Among Latin American and Caribbean countries Barbados has one of the most highly developed educational systems (Annex 2) which is competently staffed and managed. A literacy rate of about 99% is the result of easy access to schooling. Over 90% of the labor force has had at least six years of formal education, about 75% has had nine years of schooling. Primary, secondary and higher education institutions were established early in the 1700s, and during the colonial period coverage was gradually increased. After independence in 1966, the school leaving age was raised from 14 to 16 and at present all children between the ages of 5 and 16 are enrolled in school. Vocational and technical training is still at an early development stage and is being established at the post-secondary level. Efforts are being made to provide adequate training opportunities to all youngsters who do not enroll in the university.

### Primary and Secondary Education

1.05 Reaching universal coverage in primary and secondary education has been a major achievement, indicating the great importance the Barbados society accords to education. In 1984-85 about 31,000 children were enrolled in some 130 primary schools; and some 24,000 children were enrolled in 21 government secondary schools. In addition, about 4,400 children were enrolled in 15 private secondary schools. The net enrollment rates of 98% at the primary level and 95% at the secondary level are comparable to those of the highly developed countries. A policy of automatic promotion is exercised, and consequently repetition rates are almost negligible.

1.06 In terms of quality, efforts are being made to adapt the original British curriculum to the Caribbean context. New syllabi for primary and secondary schools are being developed and are gradually being introduced in schools. The English school leaving examinations at secondary level have been replaced by those of the Caribbean Examination Council (CXC), which is now in charge of certifying knowledge and skills of secondary graduates both for university entrance and direct employment purposes. These curriculum and examination reforms started after 1966 and have been financed through USAID loans.

1.07 Teachers are well trained. The Erdiston Teacher Training College (ETTC) trains primary and secondary school teachers and the University of the West Indies provides graduate level courses for school managers, offering certificates to university graduates who want to become secondary school teachers. In addition, the Barbados Community College (BCC) collaborates with the ETTC to provide training of industrial arts teachers. In 1983/84 there were about 2,500 government school teachers. All primary school teachers and 70% of secondary school teachers were classified as "trained" (i.e., they had attended the ETTC courses or they had a University Certificate). The "untrained" 30% (about 200) of secondary school teachers are mostly those approaching retirement age, thus, the MOE does not see a great need to train them given the high training costs involved.

### Vocational and Technical Training.

1.08 Formal vocational and technical training is still in an early development stage in Barbados, with two institutions under the MOE having clearly defined responsibilities for such training. The Samuel Jackman Prescod Polytechnic (SJPP) provides skills level training for both lower and upper secondary school graduates. The BCC provides post-secondary (grades 12-13) technician level education and training in industrial technology, tourism, health, commerce and applied arts. It also conducts the non-pedagogical training for secondary teacher trainees in cooperation with the ETTC. The teachers in both the BCC and the SJPP are well qualified and generally have industrial experience.

1.09 Non-formal vocational and technical training is provided mainly by the National Training Board (NTB), which was founded in 1979 under the Ministry of Labor (MOL). The NTB is responsible for planning and implementing short and intensive training schemes for unemployed youths and adults, upgrading programs for employed workers, the formal apprenticeship training system, and on-the-job training programs. The recurrent costs of NTB are financed largely (60% in 1984) from a national payroll levy (0.5%) on private sector wages; the remainder is provided by annual budget

appropriations. The SJPP cooperates with the NTB in providing formal skills and technical theory training. In 1983, the skills training program for young people (16-25 years of age), was transferred from the MOL to the NTB. This modular curricula program, with courses ranging from 3-9 months duration, is conducted mostly in temporary and poorly equipped facilities.

#### Issues in Primary and Secondary Education

1.10 Low student-teacher ratios, high costs, low achievement, unequal access to adequate school facilities and managerial deficiencies are recognized by the Government as problems which should be overcome in the next five years.

1.11 Due to the decline in population growth, school enrollments have been decreasing and are projected to continue to do so in the coming years. By 1990 there would be about 25,600 primary school age children (excluding reception age, that is, children below the school starting age of 5 years), down from 31,000 at present; and 23,600 secondary school age children, as opposed to 25,000 at present. Student-teacher ratios have gone down from 24:1 in 1973 to 21:1 in 1983 (Annex 3) as a result of the declining population growth rate coinciding with the appointment of new teachers in the late 1970s when new vocational courses were introduced in secondary schools. Although there is now a de facto freeze on the hiring of new teachers, student-teacher ratios are not expected to rise immediately, as the young age of the teaching force and the lack of alternate employment opportunities would not increase the attrition rate (about 12 per year) of teachers.

1.12 As public education is free, the high coverage of the formal education system places a high recurrent cost burden on the government budget (Annex 4). The Government subsidizes school meals, textbooks, school uniforms and transportation to primary schools, and provides bursaries to students in private secondary schools. In 1984, public education expenditures accounted for about 8% of GDP and about 20% of public sector expenditures. Public education's share of public sector expenditures is expected to remain at the 18% to 20% level during the coming years. The high level of these expenditures, however, underlines the need to reduce costs and improve the efficiency of the system.

1.13 About 30% of primary school children perform poorly in the secondary school entrance examinations, and about 50% of students fail the secondary school leaving examinations. Failure at the end of primary school is attributable to automatic promotion of students, even when they cannot satisfactorily perform at grade level. No remedial instruction programs are now available for slow learners, particularly in basic reading and writing skills. This issue is especially severe when children who have not learned to read and write adequately are promoted to higher levels, for they cannot then benefit from further attendance either in secondary schools or in vocational training programs.

1.14 Causes of failure in secondary schools need to be further researched. The CXC is beginning to correlate school achievement scores with other variables, but results are not conclusive. It is believed that one of the main causes of failure is that students are not provided the time and the instructional materials needed to learn. There are great differences between the instruction times recommended in the syllabi and the instruction times that students actually experience in classrooms. Moreover, secondary school

students are unable to benefit from the recently revised curriculum because of delays in implementation.

1.15 Another problem is that access to secondary education is inequitably distributed: (a) due to lack of public secondary school places, some 2,200 children (8% of the secondary school age group) are taught in primary school facilities (primary tops), where they receive an inadequate education; (b) some 1,800 others (6%) are taught in small, inadequately staffed and poorly housed private secondary schools, which are closing down because they are not economically viable <sup>1/</sup>; and (c) some 1,500 others (5%) attend public secondary schools built more than one hundred years ago, which are currently in unsatisfactory condition. It is estimated that, in addition to upgrading the old, dilapidated facilities, about 1,200 new secondary school places would be needed to enroll all school age children in adequate conditions.

1.16 Although there are good syllabi for secondary schools, the Curriculum Development Council has not set policies for defining which courses are to be offered in each school. Subjects are selected by independent School Boards, apparently without sufficiently analyzing the appropriate balance between curriculum requirements and instruction time in key subject areas. Moreover, due to the lack of clear guidelines on the teaching of vocational subjects, there are attempts by each school to acquire expensive, sophisticated equipment for the various vocational subjects offered. The need for a rational use of facilities is recognized in the Development Plan for 1983-88, but a formal plan to introduce the sharing of workshops among schools in order to promote effective use of scarce qualified staff in technical subjects and eliminate the unnecessary duplication of plant and equipment has not yet been defined and little sharing has actually taken place.

1.17 Education management problems are compounded by the inappropriate and congested premises occupied by the Ministry of Education and Culture (MOE). These premises were originally designed as an outpatient clinic, are owned and also partly occupied by the Ministry of Health, and do not permit room for expansion to accommodate both Ministries. Adequate rentable spaces are unavailable. Records and files are spread about on desktops and in boxes due to lack of storage space, and there are no rooms for meetings among staff from different departments. Under these circumstances, routine administrative procedures become cumbersome and inefficient, staff motivation is low, and productivity is greatly impaired.

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<sup>1/</sup> There are 15 private "assisted" secondary schools in Barbados. These receive bursaries amounting to about US\$470 per year per student (of US\$696 recurrent costs in the newer public secondary schools). About half these schools are small (less than 400 students), have no room for expansion, lack good teachers and are of a much poorer standard than public schools. Some of these poor quality schools are already in the process of closing down due to lack of students, as the increase in fees to enable the schools to raise teachers' pay, improve facilities and expand in order to be economically viable are not commensurate with the improvement in quality; hence they become unaffordable and therefore, unattractive to parents in spite of the bursaries. As the school owners have no resources to replace these schools, the cost to the Government of providing the necessary resources would equal or exceed those of building a new public school. In addition, the Government would have to continue providing the bursaries.

from different departments. Under these circumstances, routine administrative procedures become cumbersome and inefficient, staff motivation is low, and productivity is greatly impaired.

1.18 Issues in Vocational and Technical Education. Vocational and technical training is still in an early development stage in Barbados, and must overcome major constraints if it is to effectively contribute to the attainment of the country's development objectives. There is a lack of reliable labor market information. Training programs in the formal sector for semi-skilled and skilled workers and technicians, and in the informal sector for production and services entrepreneurs are of low quality and of little relevance to sectoral needs; hence, they offer little motivation to trainees. In addition, the existing training resources are not fully utilized because they are located in inappropriate, incompletely equipped facilities, randomly dispersed around Barbados.

1.19 Although the Manpower Research and Statistics Unit (MRSU) of the MOL undertakes periodic household surveys to determine employment levels, and some information on available manpower and job placement opportunities (Annex 5) is available from official sources such as the Barbados Institute of Management and Productivity (BIMAP) and the Statistical Service of the Ministry of Finance and Planning, there is a lack of labor market information in a form which can be used to systematically plan the country's training efforts to meet market demand. There is likewise a lack of information feedback from tracer studies on graduates of the system to determine the appropriateness of the training programs being offered. These inadequacies contribute to imbalances in available skills and result in missed opportunities when foreign investors interested in setting up operations in the country do not encounter the trained manpower they need.

1.20 The low quality of vocational and technical training is due primarily to inappropriate and/or obsolete equipment, lack of appropriate course syllabi and methodology (which are partly due to poor equipment) and the limited relevance of training programs to labor market needs. Although the qualifications of trainers are generally good, curricula need to be improved and defined in accordance with standards derived from occupational analyses. In addition, trainers have to be given the opportunity to keep up to date with constantly changing technological developments and their corresponding pedagogical techniques. Student motivation could be increased by improving the quality of instruction and making available the training options that would enable them to more easily obtain employment.

1.21 Training resources (teachers and those adequate facilities which are available) are inefficiently utilized. The existing small NTB skills training units are scattered around Barbados, and except for the facility in St. Lucy are generally housed in makeshift workshops offering training in one or two skills with inadequate equipment. Consequently, programs are difficult to tailor to market needs, the number and quality of outputs are low, and administration of such a system cannot avoid being inefficient. Therefore, the consolidation of these efforts into a few strategically located facilities would increase performance levels and result in a more economic use of available resources. A similar situation exists with respect to the BCC: its training programs are also scattered in a number of inadequate locations outside the main campus, which has room for expansion. This penalizes students in the outside locations who have no (or more difficult) access to campus facilities (i.e., library, demonstration rooms, etc.), leads to duplication of personnel services, and contributes to a lower

utilization of campus facilities. The SJPP on the other hand has workshops in eight areas of training, which are either unused or underutilized, due primarily to the lack of or incomplete equipment. These workshops could accommodate up to 700 secondary school students for vocational courses, and their more efficient use would avoid the duplication of facilities and resources.

### Government Strategy in the Sector

1.22 The Government's policy objectives include the equalization of educational opportunity, the modernization of educational content in order to make education a meaningful tool for development through greater emphasis on vocational and technical training, and the realization of these objectives without increasing the relatively high cost of the system. The Government has put into action strategies designed to address the deficiencies of the system. In pursuit of these objectives, the Government has obtained bilateral and multilateral assistance as follows: (a) the Bank's First Education Project (Loan 1642-BAR) improved student-teacher ratios in project schools, increased access and achieved economies of scale in amalgamating primary schools and upgrading secondary schools. Teacher quality was improved through support for the ETTC; BIMAP's capacity to improve productivity through in plant training for workers and supervisors was strengthened; and key MOE officials were trained in school administration; (b) the Inter-American Development Bank (IDB) has supported training programs at the technician and skilled worker levels and financed the construction of facilities for the BCC and the SJPP; and (c) other agencies (i.e. USAID, OAS, CIDA, and the British Government) have provided assistance in curriculum development, project execution aid to small enterprises and higher education. The Government has taken steps on its own to address the deficiencies of the system: (a) it has effected a de facto freeze on the hiring of new teachers to prevent the decrease of student-teacher ratios which would otherwise occur due to the falling population growth rate; (b) it has converted teacher training institutions to provide only inservice training of public school teachers and stopped financing and training of new teachers; (c) it is taking steps to reduce Government subsidies for school meals and student transportation; (d) it continues to support the amalgamation of primary schools to increase cost-effectiveness; and (e) it has introduced measures to reduce subject options offered to secondary school students to increase class sizes and reduce the need for specialized facilities. The Government, however, faces the task of consolidating the initial successes in attaining its goals, and must overcome the adverse effects of the world recession on its economic performance. Accordingly the Government's plans for improvements in efficiency, increase in vocational skills and opening new areas of training in modern technologies in order to provide the requisite manpower for its output diversification objectives, are deserving of external support.

### Bank Strategy in the Sector

1.23 Previous Bank Experience. The Bank agrees with the Government's strategy and the proposed Project would be the second Bank operation in the sector in Barbados. The First Education Project (Loan 1642-BAR of US\$9.0 million equivalent) assisted the Government strategy of combining measures to assure equity and relevant general education and skills training with measures to enhance the cost effectiveness of the system. The project also assisted the improvement of private sector management training by financing

the BIMAP component. Specifically, the project comprised: (a) construction, furnishing and equipping of ten primary schools to replace obsolescent schools; (b) expansion of six existing secondary schools; (c) expansion of the ETTC; (d) expansion of the facilities of BIMAP; and (e) provision of architectural and engineering services to the project unit and 30 staff/months of fellowships to BIMAP. Early implementation delays caused by site acquisition problems contributed to a 35% increase in project costs. The Government's difficulty in filling the increased funding gap with counterpart resources exacerbated the delay as well as the cost increases. A supplemental loan of US\$3.0 million was approved by the Bank on November 8, 1983, under a Special Action Program, to finance the foreign exchange component of the project cost increase, and has brought implementation up to the planned pace with reasonable efficiency. The project has satisfactorily attained its objectives, all facilities are operational and the loan has already been substantially disbursed.

1.24 To enable Barbados to overcome the adverse effects of the world recession (and its particular repercussions within the Caribbean regional market) on its economic performance, the Bank supports its plans to diversify its markets, improve efficiency and increase vocational skills. In the specific area of hotel management, one of the development priorities, BIMAP is currently planning the training programs for managers and entrepreneurs of small and medium sized hotels, in consultation with the Barbados Hotel Association and the Barbados Development Bank. BIMAP has the qualified staff and facilities to carry out this training program effectively. The training needs in the agricultural sector, another priority area for development, are being addressed in a proposed agricultural development project which would be a follow-up to earlier Bank-financed Technical Assistance Project (Loan 2115-BAR). The Bank also supports the efforts being made by the Government to increase the skills and competitiveness of its labor force, and to streamline and increase efficiency in the education sector. To this end, the Bank would continue its collaboration with other bilateral and multilateral development institutions. The Bank's involvement in this Project is necessary because beyond consolidating the benefits realized under Loan 1642-BAR, it would (a) provide the requisite incentives to implement quality and cost effectiveness measures such as the improvement of student-teacher ratios, the rationalization of vocational subjects in secondary schools and the formulation of measures to achieve cost savings and greater efficiency in the utilization of educational facilities and resources; and (b) it would contribute significantly to institutional strengthening so as to enable Barbados to acquire the necessary foundation for human resources development for a competitive modern economy.

## CHAPTER II. THE PROJECT

### Project Origin

2.01 The proposed Project was first presented to the Bank in September 1984 and reviewed by a Bank mission in October 1984. It was identified by a Bank mission that visited Barbados in February 1985. The proposed Project was prepared by the MOE, assisted by consultants under the UNESCO/CP and Bank staff and was appraised in June 1985.

## Project Objectives and Content

2.02 The proposed Project would be a follow up on Loan 1642-BAR and would cover 90% <sup>2/</sup> of the five-year investment plan for the whole sector in order to address a broad range of critical issues. The Project therefore comprises the following items: (a) the institutional strengthening of the MOE; (b) the BCC component; (c) the NTB component; (d) the MRSU component; (e) the Training Administration component; (f) the primary school component; (g) the secondary school component; and (h) the SJPP component. The Bank would finance items (a) to (e), and IDB would finance items (f) to (h). The Bank would finance the administrative costs of implementing items (a) to (e).

2.03 The proposed Project aims to further develop Barbados' educational and training system and improve the capacity to manage it through a combination of policies and actions that would enhance the internal efficiency of education while improving the quality and relevance of instruction. These efficiency and quality improvements would enable the MOE to optimize previous investments and manage the system without further substantial financial assistance. Because of its small size, there are no significant differences between the urban and rural populations of Barbados, thus the Project would equally benefit all population sectors. The NTB component particularly addresses the improvement of the skills of the unemployed and thus the relatively poorer segment of society.

2.04 Objective 1: The Project would support improvements in the quality and cost-effectiveness of primary and secondary education, through:

(a) the financing by IDB of the amalgamation of 21 small, uneconomic primary schools into ten larger schools by providing construction, equipment and furniture (Annex 6). The actual condition of the 22 schools only permit two out of the five amalgamation options (Annex 7): (i) full replacement with new facilities, or (ii) remodelling and expansion of one school. Option (i) is necessary in nine out of the ten amalgamations. By amalgamating these schools, operational costs would be reduced by about 20%, representing a 5% reduction in the operational costs of primary schools in the country. Expected savings in recurrent costs would recover the investment costs within a five-year period after Project completion provided that the current freeze on the hiring of new teachers is maintained. The Government has provided assurances that the current student-teacher ratios would not be allowed to decrease from the levels prevailing during school year 1983 of 23:1 in primary schools and 19:1 in secondary schools. These ratios would not be increased beyond 35:1 at the primary level and 30:1 at the secondary level.

(b) the financing by the Bank for improvements in the teaching of reading and writing in primary schools. The curriculum unit of the MOE would establish a system for diagnosing problems in reading and writing, and, once

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<sup>2/</sup> The areas not covered under this Project include: (a) agricultural training (para. 1.24); (b) private sector management training (para. 1.24); (c) the student Revolving Loan Fund (US\$3.0 million) financed by IDB Loan 722/SE-BA; and (d) repair and remodelling of other existing secondary schools financed entirely by the Government.

the system is in place, train one remedial education teacher in each school. Technical assistance (10 staff months (s/m) of fellowships and 12 s/m of specialist services) would be provided to the curriculum unit and about 1,500 teachers would be trained in diagnostic techniques (Annex 8).

(c) the re-establishment of the National Curriculum Committee and financing the by the Bank of the following tasks to be carried out by the Committee: (i) conduct a study to provide the basis for a policy on the teaching of vocational subjects in secondary schools and the reduction of recurrent expenditure at this level and; (ii) analyze results of CXC examinations to determine the revisions needed to make the existing syllabi more responsive to the country's development needs. The study on vocational subjects in secondary schools would consider, among other things, the cost of offering each optional subject, the minimum number of students required to offer a specific course, the minimum number of hours required per subject and the maximum number of subjects that a student should take in a year. Technical assistance (34 s/m of fellowships and 18 s/m of specialist services) and training (300 teachers and 22 administrators) would be provided to the MOE to support the above activities as well as to improve the teaching of special subjects in secondary schools (Annex 8). A draft plan prepared by the Government for the sharing of workshop facilities among secondary schools and the SJPP was reviewed during negotiations. This plan would be finalized during the first year of implementation and put into effect by September 1988.

(d) the financing by the Bank of improvements in the textbook procurement and distribution system. The Project would finance six s/m of specialist services (Annex 8) to assist the Supply Management Section of the MOE. A draft revised policy for textbook procurement and distribution would be prepared by July 1987, and would be reviewed by the Bank. Procurement of books for schools under the Project would proceed only after the policy is agreed upon with the Bank and the IDB.

(e) the financing by the IDB of the upgrading as well as acquisition of supplementary and replacement equipment and furniture for two existing secondary schools, the furnishing and equipping of a third existing secondary school and the building, equipping and furnishing of new 1,200 place school (Annex 9). The additional number of places provided to the secondary school system would accommodate the existing "primary tops". The MOE is expected to eliminate these "primary tops" by the start of operations of the new Wotton/Kingsland secondary school in December 1990.

2.05 Objective 2: The Project would foster improvements in the efficiency, quality and industrial relevance of technical and vocational training, through:

(a) the financing by the IDB of supplementary equipment in the Samuel J. Prescod Polytechnic to replace obsolete equipment; peripheral equipment to maximize the existing training capacity in the skilled worker level programs of radio-stereo-TV repair, electrical installations and welding, the print shop and the food preparation laboratory (Annex 10). The provision of supplementary equipment would increase the utilization of four existing shops by about 25%, by accomodating up to 700 students in the secondary school day-release program and help formalize better coordination of training programs among the cooperating schools. It would also increase enrollment capacity by up to 70 full-time students. About 30% of enrollments would be women.

(b) the financing by the Bank of the construction, furnishing and equipping of "purpose designed" technician level training facilities in the Barbados Community College (Annex 11). This would include the relocation of the Division of Applied Arts from its inadequate and desintegrating premises and the re-equipping and relocation of the health sciences training facilities from the Ministry of Health to the BCC main campus thus making the library and other teaching/learning services more easily available to students in these disciplines and increase their use factor. Additionally, laboratory facilities would be provided for the new computer science division, the new industrial electronics program and two additional shops for the mechanical and civil construction programs. These facilities would altogether annually accommodate about 400 full-time and 420 part-time trainees (an increase of about 200) of which about 60% would be women.

(c) the financing by the Bank of the construction, furnishing and equipping of three new skills training centers and equipping and furnishing of one existing center in the National Training Board (Annex 12). A total of 288 trainee places would be equipped to provide modular training to about 1,000 trainees annually in 24 skills programs of 3-9 nine months duration. The centers would cater to entry level skills training for unemployed youth and adults (ages 16 to 30), apprenticeship training on a day-release basis in cooperation with local industry, and skills upgrading training for about 500 unemployed workers annually. About 20% of basic training enrollments would be women.

(d) the financing by the Bank of supplementary equipment to improve the data processing capability of the Manpower Research and Statistics Unit (Annex 13); and books and supplementary equipment to upgrade the facilities of the Training Administration (Annex 14).

(e) the financing by the Bank of technical assistance (188 s/m of fellowships and 39 s/m of specialist services) (Annex 8) for the vocational and technical training system for: improving instructor capabilities in planning and upgrading course syllabi and laboratory/shop activities; improving administrative, financial management, accounting procedures and information gathering and processing; improving and expanding the existing industrial advisory committee systems of the SJPP and the BCC; formalizing on-the-job follow-up of graduates; improving and institutionalizing the industrial job analysis efforts of the NTB and the MRSU (Annex 13); and assessing the needs in public sector management training and upgrading the training programs and materials of the Training Administration (Annex 14).

2.06 Objective 3: The Project would seek to strengthen the institutional capacity to plan and manage the education and training system, through:

(a) the financing by the Bank of technical assistance (26 s/m of fellowships, 26 s/m of specialist services and local training of 150 managers and 500 school teachers) (Annex 8) to improve education planning, educational management, curriculum implementation practices in primary and secondary schools and school supervision, with emphasis being given to improve the budgeting process of MOE. In addition, the Project would assist the MOE in improving the production of printed materials.

(b) the financing by the Bank of a study on the formulation of measures to achieve cost savings and greater efficiency in the utilization of facilities and resources, as well as to address the issue of the additional recurrent costs that are expected to be generated under the Project. The study would include inter alia: (i) the selection procedures for public examinations; (ii) the marketing output of the technical/vocational system; (iii) maintenance costs; and (iv) areas of post-secondary education where savings may be realized. MOE would prepare Terms of Reference in consultation with the Ministry of Finance and present these to the Bank by December 1986.

(c) the financing by the Bank of the construction, equipping and furnishing of appropriate facilities to house the MOE Pedagogical and Administration Building.

### Project Costs and Financing

2.07 Project Cost. The total cost of the Project is estimated at about US\$37.7 million equivalent net of taxes and duties. <sup>3/</sup> The foreign exchange cost is estimated at US\$17.3 million or 46% of total Project cost, and the local cost at US\$20.4 million or 54% of total cost. Detailed cost estimates are presented in Annex 15.

2.08 Basis of Cost Estimates. The baseline cost (in March 1986 prices) is about US\$29.1 million calculated on the basis of unit prices described in Annex 15. Aggregate physical contingencies (5.3% over baseline costs) comprise 10% for site development and 5% for all other categories of expenditure (building designs are adapted from standard plans developed under Loan 1642-BAR, equipment and furniture lists are complete, and the technical assistance package contract has been awarded). Aggregate price contingencies (23% over baseline costs including physical contingencies) are based on the following price escalation rates: (a) foreign: (i) 7.2% in 1986, 6.8% in 1987-88, 7% in 1989, 7.1% in 1990, and 4% in 1991-92 for civil works, furniture, equipment and educational materials; (ii) 5% in 1986-92 for technical assistance (T.A.), professional services, project administration, studies and training; (b) local: (i) 10% in 1986, 11% in 1987-88, 12% in 1989-90, and 10% in 1991-92 for civil works and furniture; (ii) 8.5% in 1986, 9% in 1987-90, and 8% in 1991-92 for equipment and educational materials; and (iii) 6% in 1986-90, and 5% in 1991-92 for T.A., professional services, project administration, training and studies. The total foreign exchange cost including contingencies is estimated at US\$17.3 million equivalent or about 46% of total Project cost net of taxes, based on foreign exchange components of 46% for civil works (building and site development), 60% for furniture, 90% for equipment, 75% for expatriate technical assistance and fellowships, 5% for local training, project administration and studies and 20% for professional services.

2.09 Financing Plan. The total Project cost of about US\$37.7 million would be financed, on a parallel basis, by the Bank and the IDB. The proposed Bank loan of US\$10.0 million equivalent would finance 27% of the

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<sup>3/</sup> Taxes and duties are estimated at US\$3.4 million.

total Project cost and would cover 49% of the foreign cost and 7% of the local cost. In addition to the Bank loan, 45% of the total Project cost would be financed on a parallel basis by the IDB with a loan of US\$17.0 million which would cover 51% of the foreign cost and 40% of the local cost. The Government would provide US\$10.7 million to finance the remaining 28% of total cost and cover 60% of the local cost. In the context of this financing plan, the costs of the Project would be shared by the Bank, the IDB and the Government as shown in Annex 16. The total cost of the Bank financed items would be US\$17.8 million, and the IDB financed items US\$19.9 million.

2.10 Assurances have been obtained that the Government would provide its share of counterpart funds under the proposed Project in a timely fashion. To facilitate the early execution of the Bank financed components, retroactive financing up to an amount of US\$250,000 is proposed to cover expenditures incurred (for construction, procurement and technical assistance) after October 1, 1985. It is expected that during the same period the entire Project would have acquired commitments of about US\$1.0 million (of which US\$0.4m correspond to Bank financed items and US\$0.6m under IDB).

#### Incremental Recurrent Costs

2.11 When in full operation by 1992, the Project is expected to generate additional annual operating costs (in March 1986 prices) of about US\$0.66 million for the MOE and US\$0.63 million for the MOL/NTB (Annex 4). These amounts represent an increase of 1.1% above the MOE's approved 1984/85 recurrent budget, and 26% above that of NTB's 1984/85 budget. About 82% (US\$0.54) of the MOE's additional recurrent budget is attributed to the BCC component. The increase on the MOE budget is not expected to pose an undue burden as 60% of the BCC incremental recurrent cost would continue to be funded out of the payroll levy. The substantial increase on the NTB recurrent expenditures is taken in comparison with its 1985 budget which is low as it is based on NTB's currently limited operations. This budgetary increase is expected to be met without undue difficulty through the payroll levy. The Project would finance a study on (para. 2.06(b)) measures to achieve further reductions in recurrent costs.

#### Status of Project Preparation

2.12 The Government has demonstrated its commitment to the Project by providing in its 1985/86 budget, the initial outlays and manpower resources needed to proceed with early implementation. Preparation for project implementation which commenced in early 1986 is well advanced, with the use of funds allocated for this purpose under Loan 1642-BAR. Consultants have been contracted for the site surveys and design of the facilities to be built. Sites for all of the 18 Project components which require new or additional civil works are already owned by the Government. Bidding documents for the construction, furnishing and equipping of six institutions (3 primary, 2 secondary and 1 NTB skills center) are prepared for the calling of bids by June 1986. The final architectural design for the BCC and sketch designs for the MOE building were reviewed during negotiations. The Government has awarded the contract for the management of the Project's technical assistance package to an institution selected in accordance with Bank guidelines. The Government was advised of the Bank's concurrence with the proposed contract award in February 1986.

## Project Execution

2.13 Implementation Agency. The existing Project Implementation Unit (PIU) of the MOE, which has demonstrated a satisfactory performance in implementing Loan 1642-BAR, has been officially designated by the Government to manage the implementation of the Project. In view of the increased responsibilities under the proposed Project, the current PIU comprising a project manager, accountant, procurement officer, architect, quantity surveyor, engineer and support staff, has been expanded to provide it with the capability of monitoring educational aspects of the proposed Project. The additional staff (a project educator, an administrative officer, and a training officer of the NTB to coordinate the execution of the NTB component) have been appointed. Costs of these additional staff are included in the total Project cost. Key officers of the BCC, the SJPP, the MRSU and the Training Administration have been designated with the responsibility of maintaining liaison with the PIU to ensure the efficient execution of their respective components. The PIU also has in-house, under renewable fixed term contracts, expatriate consultants (an architect, two engineers and a quantity surveyor) who render professional services for the design of standard school plans as well as construction supervision. This in-house arrangement permits the PIU flexibility in its design work, and also, enables it to realize a 20-30% savings in professional fees. The PIU professional staff are MOE regular personnel who are expected to be reintegrated into the Ministry after completion of the Project. Before completion of the Project, the MOE would review its needs for school construction and maintenance and would consult with the Bank on the deployment of PIU staff.

2.14 Implementation Schedule. The Project is expected to be implemented over a period of seven years from January 1986 to December 1992 (Annex 17), one year shorter than the relevant regional profile based on experience with Loan 1642-BAR. However, it is possible that if the Project is implemented more efficiently and with fewer delays, the implementation period could be reduced to five years. This would result in Project costs being reduced from US\$37.7 million to US\$36.4 million. While the Government would need to provide higher annual counterpart funds (by US\$1.6 million in 1987 and US\$0.9 million in 1988), the Project benefits would begin to be realized earlier.

2.15 Disbursements. The proceeds of the Bank loan would be disbursed over a period of 7.5 years (1986-93) (Annex 18) to pay 44% of civil works expenditures; 100% of foreign expenditures for directly imported items and 85% of total expenditures for locally procured items covering furniture, equipment and educational materials; 100% of expenditures for technical assistance, training and studies; and 50% of professional fees for architectural, engineering services and other services. For contracts valued at equivalent US\$10,000 or less, disbursement would be made on the basis of Statements of Expenditures (SOEs) for which documentation would be correlated with the relevant withdrawal application and retained by the PIU for periodic review upon request by the Bank in addition to being audited by auditors acceptable to the Bank. All other withdrawal applications would be fully documented.

2.16 Special Account. In order to reduce the interval during which the Government would finance with its own resources the Bank's share of goods and services, a Special Account would be opened in U.S. dollars and US\$500,000 would be initially deposited into it from the Loan Account. The Special Account would be replenished monthly on receipt and approval of the Government's applications for replenishment of the Bank's share of eligible expenditures totalling not less than US\$100,000. The Bank would require a monthly statement of the Special Account to reflect transactions during the previous month.

2.17 Bank Procurement Procedures. Civil works contracts for the BCC and the MOE Pedagogical and Administration Buildings would be awarded on the basis of international competitive bidding (ICB) procedures. Because of the small size of the contracts (US\$0.9 million base cost each) and the phasing of construction which does not permit a larger package, civil works contracts for the NTB skills centers would be awarded on the basis of local competitive bidding (LCB) procedures which have been reviewed and found to be acceptable to the Bank. Interested foreign bidders would not be precluded from participating in such bids. Contracts for equipment, furniture and educational materials would be grouped, to the extent possible, to form attractive packages and would be awarded on the basis of ICB procedures in accordance with Bank guidelines when these packages total US\$50,000 or more. Contracts below US\$50,000 would be awarded on the basis of competitive bidding advertised locally in accordance with Government procurement practices which are acceptable to the Bank. In addition, miscellaneous items that cannot be grouped into packages exceeding US\$20,000 would be procured through the Government's Central Purchasing Department on the basis of three price quotations. All consulting contracts would be procured in accordance with Bank Guidelines. Annex 19 summarizes proposed procurement arrangements, the limits on the type of procurement applied and prior review thresholds for the IBRD financed items. With the thresholds established for ICB, contracts awarded through ICB would account for about 61% of the cost of the Bank financed items. The limits for prior review of bidding documentation by the Bank would result in a coverage of about 69% of the total estimated value of civil works contracts and 79% of goods contracts.

2.18 IDB Procurement Procedures. Procurement for the IDB financed items is expected to follow IDB's general procurement procedures and the clauses on tender procedures agreed with the Government, as well as the Government's local procurement procedures when applicable.

2.19 Monitoring and Evaluation. Indicators to monitor progress in the implementation of hardware as well as educational and other software components of the Project are shown in Annex 20. The PIU director would be responsible for preparing semiannual progress reports (due May 15 and November 15) which would provide information on the quantitative as well as qualitative aspects of the Project, and measure implementation progress against the monitoring indicators. These progress reports would be provided to the Bank and the IDB. Assurances were obtained during negotiations that the Government would keep the Bank informed of progress being made in the attainment of its educational objectives, and furnish the Bank annually until after six months from the Closing Date, for the Bank's review, a statement on any major education policies or plans formulated by the Government. A completion report on the proposed Project would be prepared by the PIU and

submitted to the Bank no later than six months after the closing date of the Bank loan. The Evaluation Unit of the MOE would be responsible for assessing the impact of the efficiency and quality improvement measures developed under the Project on the education system, and in coordination with the NTB and the MOL, on that of the training system. The NTB, also in coordination with the MOL would be responsible for assessing the impact of the NTB training programs. Guidelines and criteria for evaluation were discussed and agreed with the Government during appraisal. Information and insights gathered from the evaluation process would be fed back into the system for the periodic upgrading of curricula and course syllabi.

2.20 Accounting and Auditing. The auditing and accounting procedures employed under Loan 1642-BAR are satisfactory and the reports are well prepared. This practice is expected to be carried on during the implementation of the proposed Project. (Annex 21) The Government would maintain separate accounts for the Bank and IDB financed items in accordance with acceptable accounting practices. Assurances were obtained during negotiations that the Government would take steps to ensure that all accounts, financial statements, certified SOEs and the Special Account related to Bank financed items would be audited annually by independent auditors satisfactory to the Bank. The auditor's report would be sent to the Bank no later than four months after the close of each Fiscal Year (March 31).

### CHAPTER III. BENEFITS AND RISKS

#### Benefits

3.01 The proposed Project would help to consolidate improvements in the education system initiated under the Loan 1642-BAR. By improving the cost effectiveness of the system, the Project would enable the Government to free resources earmarked for education and reallocate these resources towards more substantial quality improvements in the sector. By strengthening the institutional framework to manage and plan the education and training system and providing the appropriate infrastructure for the education central management and staff, the Project would also establish a sound basis for the continued pursuit of further efficiency gains.

3.02 In addition to providing more appropriate facilities for about 8,000 students the major quantifiable benefits of the Project would be an additional annual capacity to train/upgrade about 1,000 semi-skilled and skilled workers and train about 200 technicians, of which about 28% and 60% respectively would be women. The improvements in the quality and quantity of trained manpower would increase the competitiveness of local labor, attract investors to set up operations in the country due to the availability of skills and ultimately facilitate the entry of Barbados into extraregional markets for its products. The strengthening of industrial advisory committee systems, industrial job analysis and follow-up of on-the-job performance of graduates which would ensure that training programs are more relevant to industrial development efforts defined in the Development Plan, would contribute to this effort significantly.

### Assessment of Risks

3.03 There are no significant risks associated with the technical implementation of the Project, as it would be managed by an experienced PIU. The risk of not attaining the objectives of the vocational training component is real only to the extent that the economic strategy set out for Barbados fails to meet its objectives. However, the expected economies in operational costs resulting from the amalgamation of primary schools may not be realized if the current freeze on the hiring of new teachers is relaxed and new teachers are appointed in spite of the decline in enrollments and therefore, the benefits expected from reinvesting the savings for quality improvements in primary and secondary education would be lost. There could also be some difficulty in meeting the incremental recurrent budgets of the BCC and the NTB centers when these become operational by 1992 if the allocations from the payroll levy prove inadequate. However, as the Project would provide the capability to train the technicians badly needed for the success of the development strategy for Barbados, it is not expected that problems would arise in obtaining additional recurrent costs financing in the relatively modest amount (US\$0.54 million) envisaged. These risks would be minimized, if not totally eliminated, by the Government: (a) taking measures not to decrease student-teacher ratios by maintaining the freeze on the hiring of new teachers; (b) putting into early operation the facilities sharing program between secondary schools and the SJPP as well as implementing a rational policy for selecting subject options in the secondary curriculum (as a result of studies financed by the Project); and (c) studying and adapting measures to achieve cost savings and greater efficiency in the utilization of educational facilities and resources at all levels.

### CHAPTER IV. ACTIONS TAKEN AND AGREEMENTS REACHED

4.01 The Government has:

- (a) reconvened the National Curriculum Committee which will undertake a study on vocational subjects in secondary schools (para. 2.04(c));
- (b) acquired all the sites for eighteen new project schools/centers (para. 2.12);
- (c) officially designated the PIU of Loan 1642-BAR as the PIU of this proposed Project (para. 2.13).
- (d) prepared a draft plan of action for the sharing of workshop facilities among secondary schools and the SJPP (para. 2.04(c));
- (e) completed the final architectural and construction plans, for six project schools/centers (3 primary, 2 secondary and 1 NTB skills training center); final architectural designs of the BCC facilities; and preliminary sketch plans for the MOE building (para. 2.12);

- (f) completed the final furniture and equipment lists, specifications and bidding documents (para. 2.12);
- (g) awarded the contract to the institution selected to manage the Project's technical assistance package. The draft agreement for contracting this institution's services, and the draft terms of reference for the technical assistance requirements of the Project were reviewed during negotiations (para. 2.12); and
- (h) reached agreement with the Bank during negotiations, on areas where a study would be undertaken to increase cost savings and achieve greater efficiency in the use of educational facilities and resources. Assurances were also obtained that the Government would implement the measures recommended by the study on the basis of a timetable satisfactory to the Bank and the IDB.

4.02 The Government has agreed to include the following covenants:

- (a) that the student-teacher ratios would not be permitted to decrease from the levels prevailing during school year 1983 of 23:1 in primary schools and 19:1 in secondary schools (para. 2.04(a)). These student-teacher ratios would not be increased beyond 35:1 at the primary level and 30:1 at the secondary level;
- (b) that a draft revised policy for textbook procurement and distribution be prepared by July 1987, and that procurement of books for the Project proceed only after adoption of the policy as agreed with the Bank and the IDB (para. 2.04(d)); and
- (c) that the Bank be kept informed of progress made in the attainment of the Government's educational objectives and that the Bank be furnished annually until six months after the Closing Date for the Bank's review, a statement on any major education policies or plans formulated by the Government (para. 2.19).

4.03 Subject to the above conditions and assurances the Second Education and Training Project constitutes a suitable basis for a Bank loan of US\$10.0 million to the Government of Barbados, repayable over a period of 15 years including a three year grace period.

BARRADOS  
SECOND EDUCATION AND TRAINING PROJECT

Annex I  
Page 1

COMPARATIVE EDUCATION INDICATORS

April 1, 1986

|  | BASE YEAR | POP. MILL.S. (1974) | GDP PER CAPITA (US\$) (1979) | PERCENT GDP DEVOTED TO EDUCATION | CENTRAL GOVERNMENT EXPENDITURE ON EDUCATION AS PERCENT TOTAL CENTRAL GOVERNMENT EXPENDITURE | EDUCATION EXPENDITURES ALLOCATED TO: PRI (%) SEC (%) TERT (%) | ADULT LITERACY RATE (%) (1976) | PRIMARY ENROLL. RATIO (%) | COMPLETION RATE FOR PRIMARY SCHOOL CYCLE (%) | PRIMARY STUDENTS PER TEACHER | REQUIRED PRIT COST AS PERCENT GNP/CAPITA | PROGRESSION RATE FROM PRIMARY TO SECONDARY (%) | SECONDARY ENROLL. RATIO (%) | SECONDARY STUDENTS PER TEACHER | HIGHER ENROLL. RATIO (%) |
|--|-----------|---------------------|------------------------------|----------------------------------|---|---|--------------------------------|---------------------------|--|------------------------------|--|--|-----------------------------|--------------------------------|--------------------------|
|  | (1)       | (2)                 | (3)                          | (4)                              | (5)   | (6)   | (7)                            | (8)                       | (9)  | (10)                         | (11)                                     | (12)   | (13)                        | (14)                           | (15)                     |
| <b>DEVELOPED COUNTRIES</b>             |           |                     |                              |                                  |   |   |                                |                           |  |                              |  |  |                             |                                |                          |
| AUSTRALIA                              | 80        | 14.4b               | 8,870                        | 5.3a                             | 14.6  | ---   | 103a                           | 100                       | 21   | ---                          | 90                                       | 73   | 13                          | 20.0a                          |                          |
| CANADA                                 | 81        | 21.7b               | 9,650b                       | 7.7a                             | 18.5ab  | 30a?  | 34a?                           | 23a?                      | 90b  | 100a                         | 100                                      | 92a  | 18                          | 27.5a?                         |                          |
| GERMANY F.R.G.                         | 79        | 61.2                | 12,200                       | 4.4                              | 9.0a  | ---   | ---                            | ---                       | 90b  | 80a                          | 100a                                     | 100a   | 64a                         | ---                            |                          |
| NETHERLANDS                            | 79        | 14.0                | 10,480                       | 7.0                              | 5.1   | 20  | 35                             | 25                        | 90b?   | 90                           | 95                                       | 18   | 15.3                        | 90                             |                          |
| NEW ZEALAND                            | 80        | 1.2b                | 6,081b                       | 5.5a                             | 13.4  | 37  | 11                             | 28                        | 90b  | 100                          | 100                                      | 24   | 11.6                        | 82                             |                          |
| SWEDEN                                 | 79        | 8.1                 | 12,250                       | 9.0                              | 18.2  | 31  | 10                             | 10                        | 90b  | 90a                          | 100                                      | 100  | 70a                         | 100a                           |                          |
| <b>EASTERN AFRICA</b>                  |           |                     |                              |                                  |   |   |                                |                           |  |                              |  |  |                             |                                |                          |
| ETHIOPIA                               | 83        | 1.0b                | 920b                         | 6.0                              | 22.0  | 41  | 34                             | 27                        | 40   | 100                          | 77                                       | 32   | 10.0                        | 60                             |                          |
| KENYA                                  | 81        | 4.2                 | 275                          | 2.8b                             | 19.0  | 43  | 28                             | 27                        | 25   | 20a                          | 15                                       | 37   | 20.2                        | 12                             |                          |
| UGANDA                                 | 84        | 0.4b                | 345                          | 1.8b                             | 28.0  | 49  | 29                             | 22                        | 40   | 76                           | 40                                       | 30   | ---                         | 65                             |                          |
| TANZANIA                               | 84        | 0.4                 | 480                          | 3.0                              | 11.0  | 73  | 26                             | ---                       | 10   | 42                           | 66                                       | 40   | 67.0                        | 40                             |                          |
| ZAMBIA                                 | 81        | 12.0b               | 140b                         | 2.0b                             | 11.1  | 45  | 25                             | 20                        | 53   | 60                           | 60                                       | 19.3   | 90a                         | 15                             |                          |
| SENEGAL                                | 82        | 17.4b               | 420b                         | 5.0b                             | 20.1b   | 65  | 16                             | 11                        | 40b  | 113                          | 58                                       | 36   | 14.6                        | 35                             |                          |
| LESOTHO                                | 82        | 1.6b                | 435b                         | 5.5                              | 16.0  | 38  | 32                             | 26                        | 53b  | 116a                         | 41                                       | 48   | 9.6                         | 46                             |                          |
| MADAGASCAR                             | 77        | 8.5                 | 330                          | 4.0a                             | 24.0  | 53  | 28                             | 19                        | 50   | 94b                          | 33                                       | 55b  | 8.0                         | 38                             |                          |
| MALAWI                                 | 81        | 6.1b                | 230b                         | 3.5                              | 11.4  | 38  | 14                             | 25                        | 25b  | 62                           | 23                                       | 65   | 5.8                         | 12                             |                          |
| MALITIYA                               | 83        | 1.0b                | 1,170b                       | 4.3                              | 14.0  | 46  | 36                             | 7                         | 80b  | 93                           | 72                                       | 23   | 13.0                        | 100                            |                          |
| RUANDA                                 | 83        | 5.0b                | 270b                         | 3.6                              | 27.4  | 71  | 16                             | 13                        | 37b  | 45                           | 30                                       | 40   | 16.0                        | 9                              |                          |
| SEYCHELLES                             | 79        | 0.6                 | 1,770                        | 5.0                              | 27.4a   | 34a   | 13a                            | 10a                       | ---  | ---                          | 25                                       | ---  | ---                         | ---                            |                          |
| SOMALIA                                | 81        | 4.5                 | 280                          | 1.5                              | 10.5  | 50b   | 44b                            | 6b                        | ---  | 22b                          | 80b                                      | ---  | 12b                         | 22                             |                          |
| SUDAN                                  | 80        | 10.2b               | 380b                         | 1.0                              | ---   | 66  | 39                             | ---                       | 32   | 51a                          | 68                                       | 34   | 1.4                         | 44                             |                          |
| SWAZILAND                              | 81        | 0.2b                | 960b                         | 3.0b                             | 20.4  | 51  | 34                             | 15                        | 65b  | 93                           | 50                                       | 33   | 11.0                        | 98                             |                          |
| TANZANIA                               | 80        | 18.5                | 260                          | 5.0                              | 17.7  | 47  | 10                             | 18                        | 79b  | 90b                          | 87                                       | 43   | 11.0                        | 19b                            |                          |
| UGANDA                                 | 80        | 12.4b               | 300b                         | ---                              | 16.1a   | 23b   | 13b                            | 20b                       | 48   | 56a                          | 61                                       | 34   | ---                         | 17                             |                          |
| ZAMBIA                                 | 81        | 20.0b               | 210b                         | 7.7                              | 26.4  | ---   | ---                            | 10                        | 56b  | 76                           | 25                                       | 30   | 21.0                        | 60                             |                          |
| ZAMBIA                                 | 80        | 5.7b                | 566b                         | 4.5b                             | 11.1  | 48  | 23                             | 22                        | 44b  | 95                           | 80                                       | 48   | 12.0                        | 19                             |                          |
| ZIMBABWE                               | 81        | 7.7b                | 700b                         | 5.1                              | 19.5  | 62  | 12                             | 6                         | 44b  | 90                           | 55                                       | 39   | 20.0                        | 85                             |                          |
| <b>WESTERN AFRICA</b>                  |           |                     |                              |                                  |   |   |                                |                           |  |                              |  |  |                             |                                |                          |
| GUINEA                                 | 79        | 3.4b                | 320b                         | 6.5a                             | 35.0  | 43  | 21                             | 5                         | 11b  | 42                           | 30                                       | 46   | 14.0                        | 30                             |                          |
| SIERRA LEONE                           | 81        | 6.5                 | 210b                         | 2.1a                             | 21.7  | 43  | 29                             | 28                        | 9  | 36                           | 25                                       | 57   | 26.3                        | 14                             |                          |
| GUINEA                                 | 79        | 8.2                 | 580                          | 7.9?                             | 16.0a   | 33a   | 43a                            | 20a                       | ---  | 76a                          | 45a                                      | 50a  | 11.0a                       | 20a                            |                          |
| LIBERIA                                | 79        | 2.2                 | 290                          | 3.0a                             | 20.0a   | ---   | ---                            | ---                       | ---  | ---                          | ---                                      | ---  | ---                         | ---                            |                          |
| SIERRA LEONE                           | 79        | 4.4                 | 120                          | 2.6ab                            | 21.7b   | ---   | ---                            | ---                       | 15   | 25a                          | ---                                      | ---  | ---                         | ---                            |                          |
| GUINEA                                 | 78        | 1.5                 | 670                          | 9.0a                             | 27.7a   | ---   | ---                            | ---                       | ---  | ---                          | ---                                      | ---  | ---                         | ---                            |                          |
| GUINEA                                 | 77        | 0.6                 | 1,400                        | 3.7b                             | ---   | ---   | ---                            | ---                       | ---  | ---                          | ---                                      | ---  | ---                         | ---                            |                          |
| GUINEA                                 | 77        | 0.6                 | 220                          | 3.3a                             | 6.5b  | 44  | 25a                            | 6a                        | 10b  | 40b                          | 90a                                      | 27b  | 44.7a                       | 40                             |                          |
| GUINEA                                 | 76        | 11.3                | 450                          | 4.0a                             | 15.5b   | ---   | ---                            | ---                       | ---  | ---                          | ---                                      | ---  | ---                         | ---                            |                          |
| GUINEA                                 | 79        | 5.3                 | 290b                         | 4.0a                             | ---   | 25a   | 28a                            | 20a                       | ---  | 36                           | 36                                       | 38   | 20.0a                       | 85                             |                          |
| GUINEA                                 | 81        | 8.2b                | 1,070b                       | 10.0                             | 45.0  | 33  | 44                             | 13                        | 30b  | 60                           | 86                                       | 43   | 26.0                        | 13                             |                          |
| GUINEA                                 | 80        | 1.0                 | 520                          | 4.4                              | 19.6  | 43  | 23                             | 24                        | 30   | 52                           | 32                                       | 35   | 20.0                        | 76                             |                          |
| GUINEA                                 | 81        | 7.0b                | 180                          | 4.2a                             | 21.7a   | 38  | 21                             | 11                        | 10   | 20                           | 60                                       | 44   | 15.7                        | 66                             |                          |
| GUINEA                                 | 78        | 1.6b                | 320b                         | 3.5                              | 16.0  | 33  | 43                             | 25                        | 17b  | 32                           | 60                                       | 44   | 52.0                        | 30                             |                          |
| GUINEA                                 | 78        | 5.2                 | 300                          | 4.3a                             | 14.0a   | 52a   | 60a                            | 5a                        | 8  | 17                           | 50a                                      | 41a  | 38.7a                       | 40                             |                          |
| GUINEA                                 | 83        | 93.6b               | 760b                         | 7.4a                             | 16.0  | ---   | ---                            | ---                       | ---  | ---                          | ---                                      | ---  | ---                         | ---                            |                          |
| GUINEA                                 | 77        | 5.5                 | 450                          | 5.0                              | 21.0  | 44  | 34                             | 20                        | 10   | 36                           | 93                                       | 36   | 19.5                        | 46.7                           |                          |
| GUINEA                                 | 77        | 3.4                 | 250                          | 4.0b                             | 16.0b   | ---   | ---                            | ---                       | ---  | ---                          | ---                                      | ---  | ---                         | ---                            |                          |
| GUINEA                                 | 78        | 2.4                 | 400                          | 6.5a                             | 26.5a   | 30a   | 20a                            | 21a                       | 18   | 74                           | 40                                       | 54b  | 38.0                        | 52                             |                          |
| <b>LATIN AMERICA AND THE CARIBBEAN</b> |           |                     |                              |                                  |   |   |                                |                           |  |                              |  |  |                             |                                |                          |
| ARGENTINA                              | 78        | 27.3                | 2,210                        | 2.7                              | 10.8  | 43a   | 31a                            | 18a                       | 93b  | 89                           | 52                                       | 17   | ---                         | 87                             |                          |
| ARGENTINA                              | 79        | 0.2                 | 2,770                        | 5.7                              | 19.1  | 36  | 36                             | 11                        | 93b  | 99                           | 92                                       | 24   | ---                         | 97                             |                          |
| ARGENTINA                              | 78        | 0.2                 | 2,680                        | 8.5a                             | 22.1a   | 43a   | 31a                            | 16a                       | 90b  | 100a                         | 90a                                      | 22a  | ---                         | 90a                            |                          |
| ARGENTINA                              | 80        | 5.4                 | 550                          | 6.1a                             | 30.5a   | ---   | ---                            | ---                       | ---  | ---                          | ---                                      | ---  | ---                         | ---                            |                          |
| ARGENTINA                              | 79        | 116.5               | 1,770                        | 3.8                              | 6.2   | 51  | ---                            | 14                        | 76   | 73a                          | ---                                      | 23a  | 4.5b                        | 61a                            |                          |
| ARGENTINA                              | 76        | 10.0                | 1,890                        | 3.2b                             | 13.0b   | ---   | ---                            | ---                       | ---  | 110b                         | ---                                      | 34b  | ---                         | ---                            |                          |
| ARGENTINA                              | 80        | 26.7b               | 1,800b                       | 3.3                              | 25.0  | 35  | 20                             | 20                        | 81b  | 78                           | 36                                       | 32   | 6.6                         | 47                             |                          |
| ARGENTINA                              | 80        | 2.2b                | 1,810b                       | 8.4                              | 31.1  | 40  | 27                             | 13                        | 90   | 93                           | 77                                       | 33   | 5.5                         | 77                             |                          |
| ARGENTINA                              | 78        | 9.8                 | ---                          | 8.0                              | 11.0  | ---   | ---                            | ---                       | 96   | 112b                         | 98                                       | 18b  | ---                         | 98                             |                          |
| ARGENTINA                              | 80        | 5.3                 | 1,030                        | 2.0                              | 17.0  | 39  | 21                             | 22                        | 68b  | 80                           | 31                                       | 50   | 3.2                         | 94                             |                          |
| ARGENTINA                              | 80        | 8.6b                | 1,110                        | 6.0a                             | 36.7  | 45  | 31                             | 16                        | 81   | 105                          | ---                                      | 36   | 12.6                        | 86                             |                          |
| ARGENTINA                              | 77        | 4.4                 | 640                          | 3.4b                             | 23.1b   | 64  | 8                              | 27                        | 62   | 82b                          | 32                                       | 39   | ---                         | 41                             |                          |
| ARGENTINA                              | 78        | 6.8                 | 1,010                        | 1.7a                             | 12.6a   | ---   | ---                            | ---                       | ---  | 60b                          | ---                                      | 35b  | ---                         | 60                             |                          |
| ARGENTINA                              | 76        | 0.8                 | 630                          | 8.1b                             | 13.8b   | ---   | ---                            | ---                       | ---  | 98b                          | ---                                      | 32b  | ---                         | ---                            |                          |
| ARGENTINA                              | 80        | 5.0b                | 230                          | 3.4a                             | 7.0a  | 65  | 9                              | 6                         | 23b  | 50                           | 20                                       | 41   | 19.0                        | 62a                            |                          |
| ARGENTINA                              | 78        | 3.6                 | 520                          | 3.5b                             | 14.5b   | 62a   | 15a                            | 10a                       | 60   | 90b                          | 30a                                      | 41b  | 18.0a                       | 60a                            |                          |
| ARGENTINA                              | 80        | 2.1                 | 1,110                        | 4.5                              | 13.7  | 37  | 43                             | 20                        | 90   | 98                           | 98                                       | 60   | 7.3                         | 95                             |                          |
| ARGENTINA                              | 80        | 45.5                | 1,880                        | 4.7                              | 17.0a   | 46  | 30                             | 15                        | 92   | 98                           | 53                                       | 44   | 9.5                         | 86                             |                          |
| ARGENTINA                              | 78        | 2.6b                | 610b                         | 3.0b                             | 14.0b   | ---   | ---                            | ---                       | 90b  | 85b                          | 24                                       | 37b  | ---                         | 26b                            |                          |
| ARGENTINA                              | 78        | 1.8b                | 1,550b                       | 5.5a                             | 21.8a   | 42a   | 13a                            | 13a                       | 82b  | 95b                          | ---                                      | 25b  | ---                         | ---                            |                          |
| ARGENTINA                              | 79        | 3.0                 | 1,140                        | 1.4a                             | 14.2  | 42  | 17                             | 20                        | 84   | 83                           | 32                                       | 28   | 3.1a                        | 76                             |                          |
| ARGENTINA                              | 80        | 16.4                | 1,000                        | 3.4                              | 14.3  | 53  | 15                             | 10                        | 80   | 83                           | 56                                       | 30   | 9.8                         | 89                             |                          |
| ARGENTINA                              | 77        | 1.1                 | 3,810                        | 4.8b                             | 12.0b   | 48  | 12                             | 20                        | 95   | 98                           | 91                                       | 30   | 10.5a                       | 40                             |                          |
| ARGENTINA                              | 79        | 2.9                 | 2,500                        | 2.5                              | 9.4b  | ---   | ---                            | ---                       | 94   | 105b                         | ---                                      | ---  | ---                         | ---                            |                          |
| ARGENTINA                              | 78        | 14.4                | 1,440                        | 5.1a                             | 18.0a   | ---   | ---                            | ---                       | 82   | 106b                         | ---                                      | ---  | ---                         | ---                            |                          |

**BARBADOS**

**SECOND EDUCATION AND TRAINING PROJECT**

**COMPARATIVE EDUCATION INDICATORS**

April 1, 1986

|   | BASE YEAR | POP. MIL. S. (1975)  | GDP PER CAPITA (US\$) (1979) | PERCENT GDP DEVOTED TO EDUCATION | CENTRAL GOVERNMENT EXPENDITURE ON EDUCATION AS PERCENT TOTAL CENTRAL GOVERNMENT EXPENDITURE | EDUCATION EXPENDITURES ALLOCATED TO: |                 |                 | ADULT LITERACY RATE (%) (1976) | PRIMARY ENROLL. RATIO (%) | COMPLETION RATE FOR PRIMARY SCHOOL CYCLE (%) | PRIMARY STUDENTS PER TEACHER | RECURRENT UNIT COST PRIMARY EDUCATION AS PERCENT GDP/CAPITA | PROGRESSION RATE FROM PRIMARY TO SECONDARY (%) | SECONDARY ENROLL. RATIO (%) | SECONDARY STUDENTS PER TEACHER | HIGHER ENROLL. RATIO (%) |
|---|-----------|----------------------|------------------------------|----------------------------------|---|--------------------------------------|-----------------|-----------------|--------------------------------|---------------------------|--|------------------------------|---|--|-----------------------------|--------------------------------|--------------------------|
|   | (1)       | (2)                  | (3)                          | (4)                              | (5)   | PRI                                  | SEC             | HI              | (6)                            | (7)                       | (8)  | (9)                          | (10)  | (11)   | (12)                        | (13)                           | (14)                     |
| <b>EAST ASIA AND THE PACIFIC</b>            |           |                      |                              |                                  |   |                                      |                 |                 |                                |                           |  |                              |   |  |                             |                                |                          |
| CHINA                                       | 83        | 1,025.0 <sup>b</sup> | 310 <sup>b</sup>             | 3.1                              | 7.1   | 38                                   | 40              | 22              | 77 <sup>b</sup>                | 77                        | 62   | 25                           | 8.0   | 65   | 35                          | 17                             | 4.80                     |
| INDONESIA                                   | 81        | 150.5 <sup>b</sup>   | 520                          | 2.1                              | 9.3   | 70                                   | 24              | 6               | 32 <sup>b</sup>                | 98                        | 61   | 37                           | 11.0  | 74   | 27                          | 26                             | 3.70                     |
| KOREA                                       | 82        | 39.3 <sup>b</sup>    | 1,636 <sup>b</sup>           | 7.7 <sup>w</sup>                 | 20.8  | 34                                   | 34              | 31              | 96                             | 98                        | 98   | 67                           | 19.0  | 98   | 84                          | 38                             | 21.80                    |
| MALAYSIA                                    | 84        | 15.2 <sup>b</sup>    | 1,870 <sup>b</sup>           | 6.1                              | 16.7  | 79 <sup>w</sup>                      | 43 <sup>w</sup> | 18 <sup>w</sup> | 70 <sup>b</sup>                | 97 <sup>x</sup>           | 97   | 26                           | 11.5 <sup>w</sup>   | 89   | 72                          | 22                             | 4.00                     |
| PAPUA N.G.                                  | 83        | 3.0 <sup>b</sup>     | 820                          | 5.6                              | 19.0  | 40                                   | 17              | 22              | —                              | 60                        | 73 <sup>a</sup>                              | 31 <sup>a</sup>              | 15.0  | 35   | 17 <sup>xx</sup>            | 27 <sup>x</sup>                | 1.00                     |
| PHILIPPINES                                 | 79        | 48.3 <sup>b</sup>    | 690 <sup>b</sup>             | 2.8 <sup>w</sup>                 | 14.0  | 64                                   | 36              | —               | 75 <sup>b</sup>                | 84                        | 65   | 31                           | 7.1   | 89   | 55                          | 36                             | 21.00                    |
| SINGAPORE                                   | 80        | 2.4                  | 4,420                        | 2.7                              | 6.7   | 39                                   | 40              | 16              | 83                             | 92                        | 82   | 31                           | 8.8   | 96   | 55                          | 27                             | 8.00                     |
| SOL. IM ISL.                                | 82        | 0.2 <sup>b</sup>     | 640                          | 4.6 <sup>w</sup>                 | 19.0 <sup>b</sup>   | 41                                   | 34              | 20              | 15                             | 78                        | 80   | 27                           | 10.5  | 40   | 20                          | 18                             | 2.50                     |
| THAILAND                                    | 82        | 69.0 <sup>b</sup>    | 800 <sup>b</sup>             | 3.4                              | 20.3  | 59                                   | 14              | 10              | 86 <sup>b</sup>                | 101                       | 68   | 21                           | 9.3 <sup>a</sup>  | 64   | 46                          | 18                             | 4.00                     |
| <b>SOUTH ASIA</b>                           |           |                      |                              |                                  |   |                                      |                 |                 |                                |                           |  |                              |   |  |                             |                                |                          |
| BAHRAIN                                     | 79        | 0.2 <sup>b</sup>     | 90                           | 1.1 <sup>b</sup>                 | 10.1 <sup>w</sup>   | 51                                   | 17              | 20              | 27 <sup>b</sup>                | 63 <sup>w</sup>           | —  | 53                           | 5.6   | —  | 14                          | 23                             | 1.43                     |
| BRITAN                                      | 80        | 1.2                  | 80                           | 3.4                              | 11.0  | —                                    | —               | —               | 10                             | 12                        | —  | —                            | —   | —  | —                           | —                              | —                        |
| INDIA                                       | 77        | 699.6                | 210                          | 2.9 <sup>w</sup>                 | 4.9 <sup>w</sup>  | —                                    | —               | —               | 36                             | 78 <sup>w</sup>           | —  | 41                           | —   | —  | 28 <sup>w</sup>             | —                              | 8.10 <sup>w</sup>        |
| NEPAL                                       | 82        | 15.0 <sup>b</sup>    | 150 <sup>b</sup>             | 1.4                              | —   | —                                    | —               | —               | 19                             | 70                        | —  | 38                           | —   | —  | 21                          | 23                             | 3.70 <sup>w</sup>        |
| PAKISTAN                                    | 82        | 87.1 <sup>b</sup>    | 300 <sup>b</sup>             | 2.0                              | 7.0   | 38                                   | 20              | 24              | 22                             | 50                        | 41   | 30                           | 5.8   | 56   | 21                          | 15                             | 3.00                     |
| <b>EUROPE, MIDDLE EAST AND NORTH AFRICA</b> |           |                      |                              |                                  |   |                                      |                 |                 |                                |                           |  |                              |   |  |                             |                                |                          |
| AFGHANISTAN                                 | 77        | 15.5                 | —                            | 1.7                              | 3.7   | 47                                   | 19              | 15              | 12                             | 31 <sup>w</sup>           | 69   | 37 <sup>b</sup>              | —   | 62   | 8                           | 22 <sup>bw</sup>               | 1.0 <sup>w</sup>         |
| ALGERIA                                     | 79        | 18.3                 | 1,770                        | 3.8 <sup>w</sup>                 | 12.3  | 14 <sup>a</sup>                      | 26 <sup>a</sup> | 21 <sup>a</sup> | 15                             | 83 <sup>w</sup>           | 45 <sup>a</sup>                              | 37                           | 7.07  | 55 <sup>a</sup>                                | 20 <sup>w</sup>             | 26                             | 3.70 <sup>w</sup>        |
| EGYPT                                       | 82        | 43.3 <sup>a</sup>    | 650 <sup>a</sup>             | 4.6 <sup>w</sup>                 | 7.9   | 31 <sup>a</sup>                      | 35 <sup>a</sup> | 26 <sup>a</sup> | 44                             | 75 <sup>x</sup>           | 89 <sup>a</sup>                              | 34 <sup>a</sup>              | 9.8 <sup>a</sup>  | 83 <sup>a</sup>                                | 43 <sup>a</sup>             | 104                            | 17.00                    |
| GREECE                                      | 76        | 9.3                  | 4,140                        | 2.8 <sup>w</sup>                 | 10.6 <sup>b</sup>   | 37                                   | 26              | 21              | —                              | 97 <sup>bx</sup>          | —  | 29 <sup>b</sup>              | 4.27  | —  | 78 <sup>bx</sup>            | 27 <sup>bw</sup>               | 17.80 <sup>bw</sup>      |
| IRAN  | 79        | 16.9                 | —                            | 5.7 <sup>w</sup>                 | 14.1 <sup>w</sup>   | —                                    | —               | —               | 50                             | 103 <sup>bx</sup>         | —  | 32 <sup>a</sup>              | —   | —  | 44 <sup>bx</sup>            | 24 <sup>a</sup>                | 4.00 <sup>w</sup>        |
| IRAQ  | 79        | 12.6                 | 2,710                        | 4.3 <sup>w</sup>                 | 6.9 <sup>w</sup>  | —                                    | —               | —               | —                              | 100 <sup>w</sup>          | —  | 28                           | —   | —  | 45 <sup>w</sup>             | 29 <sup>a</sup>                | 9.10 <sup>w</sup>        |
| IRELAND                                     | 81        | 3.4 <sup>b</sup>     | 6,600                        | 6.3 <sup>w</sup>                 | 11.8 <sup>w</sup>   | —                                    | —               | —               | 98                             | 93                        | 94   | 29                           | —   | 98   | 81                          | 14                             | 11.00                    |
| JORDAN                                      | 81        | 2.2 <sup>b</sup>     | 1,620 <sup>b</sup>           | 4.9 <sup>w</sup>                 | 10.2  | 19                                   | 44              | 18              | 79 <sup>b</sup>                | 57                        | 85   | 32                           | 15.1  | —  | 57                          | 38                             | 8.90                     |
| LEBANON                                     | 79        | 2.1                  | —                            | —                                | 18.6 <sup>w</sup>   | —                                    | —               | —               | —                              | 96 <sup>a</sup>           | —  | 19                           | —   | —  | 46 <sup>x</sup>             | —                              | 27.80 <sup>w</sup>       |
| LIBYIA                                      | 84        | 21.8 <sup>b</sup>    | 670 <sup>b</sup>             | 6.0 <sup>w</sup>                 | 22.9  | 38                                   | 43              | 19              | 35                             | 77 <sup>x</sup>           | 9  | 31                           | 15.1  | —  | 14 <sup>w</sup>             | 38                             | 8.90 <sup>w</sup>        |
| OMAN  | 82        | 0.9 <sup>b</sup>     | 5,920 <sup>b</sup>           | 2.5 <sup>w</sup>                 | 12.7 <sup>a</sup>   | —                                    | —               | —               | 30 <sup>bx</sup>               | 71 <sup>x</sup>           | 65   | 25                           | —   | 86   | 11                          | 14                             | —                        |
| PORTUGAL                                    | 79        | 9.8 <sup>b</sup>     | 2,060                        | 3.6                              | 22.2  | 50                                   | 28              | 11              | 78                             | 97                        | 20   | 18 <sup>a</sup>              | 12.8  | 88 <sup>a</sup>                                | 35 <sup>x</sup>             | 17 <sup>a</sup>                | 8.10 <sup>w</sup>        |
| ROMANIA                                     | 78        | 22.1                 | 2,100                        | 3.9 <sup>bw</sup>                | 6.2 <sup>w</sup>  | —                                    | —               | —               | 98                             | 106 <sup>bx</sup>         | —  | 23 <sup>b</sup>              | —   | 98   | 86 <sup>bx</sup>            | 22 <sup>b</sup>                | 10.60 <sup>bw</sup>      |
| SPAIN                                       | 76        | 37.0                 | 4,920                        | 2.1 <sup>w</sup>                 | 16.8 <sup>w</sup>   | —                                    | —               | —               | —                              | 98 <sup>bx</sup>          | —  | 29 <sup>b</sup>              | —   | —  | 67 <sup>bw</sup>            | —                              | 24.10 <sup>bw</sup>      |
| SYRIA                                       | 78        | 8.4                  | 1,170                        | 4.4 <sup>b</sup>                 | 10.3  | 39                                   | 25              | 26              | 58                             | 87 <sup>bw</sup>          | 80   | 35 <sup>b</sup>              | —   | 68   | 41 <sup>bw</sup>            | 21 <sup>b</sup>                | 12.40                    |
| TUNISIA                                     | 79        | 6.4                  | 1,130                        | 7.0 <sup>b</sup>                 | 19.0  | 42                                   | 39              | 18              | 62 <sup>b</sup>                | 100 <sup>x</sup>          | 80   | 39 <sup>b</sup>              | 12.8  | 30   | 30 <sup>x</sup>             | 30                             | 6.00                     |
| TURKEY                                      | 83        | 47.5                 | 1,230                        | 3.1                              | 16.2  | 50                                   | 22              | 24              | 73 <sup>b</sup>                | 110                       | 77   | 31                           | 6.0   | 55   | 26                          | 11                             | 8.00                     |
| YEMEN A.S.                                  | 80        | 6.8                  | 420                          | 5.0 <sup>w</sup>                 | 12.0  | 44                                   | 7               | 7               | 23 <sup>b</sup>                | 37                        | 12 <sup>w</sup>                              | 39 <sup>w</sup>              | 67.0  | 85   | 3                           | 20                             | 1.10                     |
| YEMEN P.S.A.                                | 82        | 2.0 <sup>b</sup>     | 420 <sup>b</sup>             | 7.4                              | 9.7   | 63 <sup>a</sup>                      | 14 <sup>a</sup> | 8 <sup>a</sup>  | 53                             | 61                        | 34   | 25                           | 22.0 <sup>a</sup>   | 66   | 17                          | 20                             | 2.50                     |

**SUMMARY FOR DEVELOPING COUNTRIES:**

|                      |            |            |         |        |        |        |          |         |         |            |          |        |        |             |
|----------------------|------------|------------|---------|--------|--------|--------|----------|---------|---------|------------|----------|--------|--------|-------------|
| Number of Countries: | 84         | 93         | 70      | 69     | 67     | 81     | 92       | 68      | 95      | 65         | 75       | 91     | 88     | 85          |
| Range:               | (1.4-10.0) | (1.7-34.3) | (23-44) | (8-46) | (5-33) | (8-99) | (12-119) | (12-99) | (17-77) | (1.4-67.0) | (10-100) | (1-84) | (8-48) | (0.03-29.0) |
| Quartiles: Upper:    | 5.6        | 21.7       | 51      | 36     | 22     | 81     | 98       | 80      | 43      | 29         | 87       | 47     | 26     | 11.0        |
| Median:              | 4.0        | 14.1       | 43      | 28     | 19     | 53     | 83       | 61      | 35      | 13         | 65       | 26     | 22     | 3.7         |
| Lower:               | 3.0        | 11.0       | 38      | 21     | 13     | 25     | 60       | 35      | 28      | 9          | 40       | 14     | 19     | 1.0         |
| Quartile Deviation:  | 1.3        | 5.4        | 4.5     | 7.5    | 4.5    | 28.0   | 19.0     | 22.5    | 7.0     | 5.6        | 23.5     | 16.5   | 3.5    | 5.0         |
| Mean:                | 4.4        | 17.0       | 46      | 28     | 18     | 53     | 76       | 59      | 36      | 16         | 62       | 31     | 21     | 6.9         |
| Standard Deviation:  | 1.9        | 8.7        | 12      | 10     | 7      | 29     | 27       | 24      | 11      | 13         | 27       | 23     | 7      | 7.4         |
| Median:              | 4.0        | 16.0       | 43      | 28     | 19     | 53     | 83       | 61      | 35      | 13         | 65       | 26     | 22     | 3.7         |

**SYMBOLS:**

- DATA UNAVAILABLE
- ... MAGNITUDE NIL OR NEGLIGIBLE
- ? DATA QUESTIONABLE
- \* INCLUDES PART-TIME STUDENTS

**FOOTNOTES:**

- A = DATA PRIOR TO BASE YEAR
- B = DATA MORE RECENT THAN BASE YEAR
- C = CURRENT PRICES
- F = NET ENROLLMENT RATIO
- F = GROSS ENROLLMENT RATIO
- P = GDP
- S = MINISTRY OF EDUCATION (MOE) ONLY
- T = MOE AND STATE GOVERNMENT ONLY
- W = PUBLIC EXPENDITURE ONLY
- X = INCLUDES OVER-AGE STUDENTS
- Y = UNESCO SOURCES

**SOURCES:**

Column 1 and 2: World Bank Atlas or Education sector field missions.  
Columns 3 to 14: World Bank Education sector missions, Government sources and/or the Pnenco Statistical Yearbook.

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 Bank missions from government sources; the remainder are staff estimates or data from Pnenco. 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 kept in mind:

- (1) "Education" as defined in the table includes all education and training, both 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. 4) 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. 4 and 5) refers 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 are 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 variations 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. Over-aged students may be included in these figures and can inflate the ratios.

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

Structure and Organization of the Formal Education System

Modeled on the British school system, the structure and organization of Barbados educational system is similar to that of other English speaking Caribbean countries. A primary cycle of 6 years is preceded by one or two years of nursery education (see Annex 2, page 2). The primary cycle is divided in two grades of "infants" and four grades of "juniors." Children are admitted to nursery school when they are 3 or 4 years old, and they start first grade (infant school) when they are 5 years old. About 35% of the children 3-4 years old attend nursery school and virtually all children 5 to 11 years old attend primary school.

At age 11, all children take the Secondary School Entrance Examination (Common Entrance Examination). Good performers are assigned to schools of their choice. Poor performers are given bursaries to attend private schools. Children who fail stay in primary "composite" schools which provide them with a mediocre secondary education, or they may attend a vocational school (now called senior school). In 1984-1985 about 95% of the secondary school age population were attended the secondary school cycle of 5 years. About 73% was enrolled in government secondary schools, 17% attended private schools and 10% was enrolled in "tops" of the composite primary schools or in the vocational schools.

Flow of students through the system is very regular because it is based on a policy of automatic promotion. About 98% of the children are promoted every year from one grade to the next and about 90% of the students reach the last year of secondary education at age 16. It is customary, however, to hold weak students for one additional year in this last grade of secondary education so as to prepare them for the secondary school leaving examinations.

At age 14 children may take the School Leaving Certificate and at age 16 students take the Ordinary Level Examinations ("O" levels) prepared by the Caribbean Examination Council or by the British Syndicate. These examinations certify the graduates for specific jobs and are necessary for admission to university programs. In addition, a few students (less than 1% of each graduating class) continue their secondary education for two more years (up to the age of 18) in order to take the Cambridge Advanced Level Examinations ("A" level) valid for entry in European Universities. These two additional years of secondary education are provided by two government schools: Harrison College and Queens College, to a very select group of students who desire to continue their university education overseas.

BARBADOS

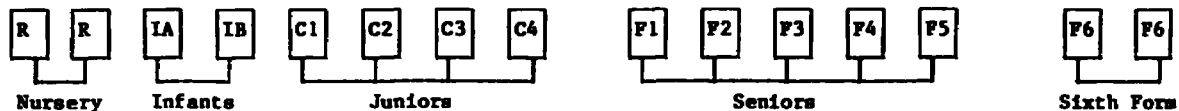
SECOND EDUCATION AND TRAINING PROJECT

Structure of the Formal System of Education 1985

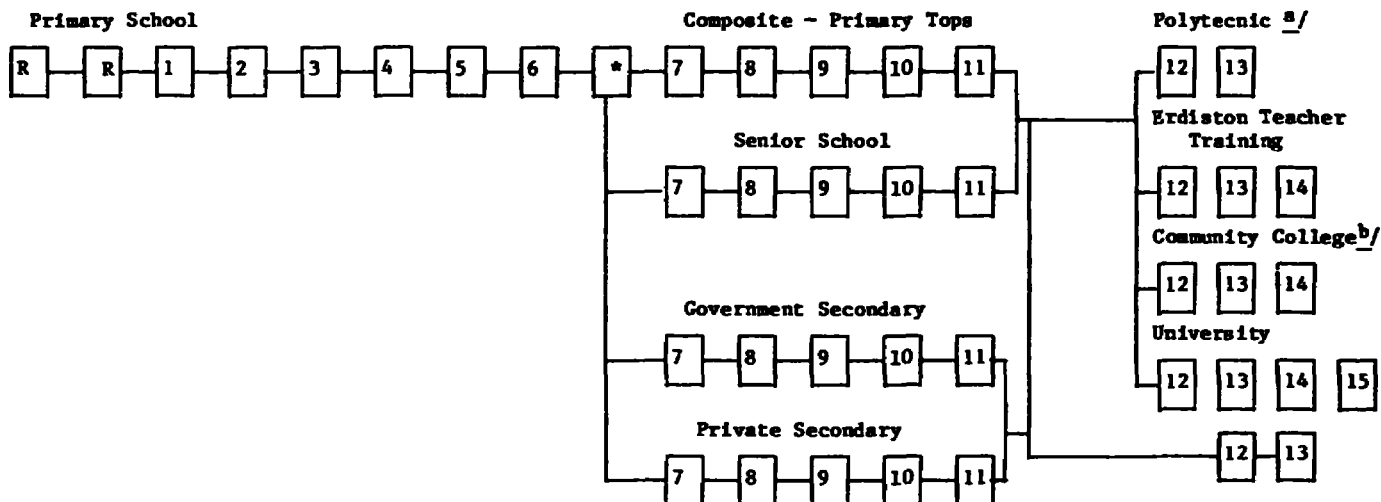
Age:

3/4 4/5 5/6 6/7 7/8 8/9 9/10 10/11 11 11/12 12/13 13/14 14/15 15/16 16 16/17 17/18

Levels:



Grades:



R Reception Class

\* Common Entrance Examination - CEE

IA - Infants A

IB - Infants B

C1 - Class 1

F1 - Form 1

<sup>a/</sup> It is not really post secondary in that it will accept trainees by special examination who are 16 years of age and have completed only 9 years of school. Has skills level programs only.

<sup>b/</sup> Technician level programs for secondary school graduates.

BARBADOSSECOND EDUCATION AND TRAINING PROJECTStudent Teacher Ratios in Government Schools from 1973 to 1983

| YEAR | Number of Pupils         |           |        | Number of Teachers       |           |       | Student Teacher Ratios   |           |       |
|------|--------------------------|-----------|--------|--------------------------|-----------|-------|--------------------------|-----------|-------|
|      | Primary<br>and Composite | Secondary | Total  | Primary<br>and Composite | Secondary | Total | Primary<br>and Composite | Secondary | Total |
| 1973 | 37,563                   | 17,059    | 54,622 | 1,414                    | 891       | 2,225 | 26                       | 20        | 24    |
| 1974 | 37,047                   | 17,734    | 54,781 | 1,410                    | 902       | 2,321 | 26                       | 20        | 24    |
| 1975 | 35,708                   | 19,042    | 54,750 | 1,390                    | 968       | 2,358 | 26                       | 20        | 23    |
| 1976 | 35,992                   | 19,064    | 55,056 | 1,453                    | 997       | 2,450 | 25                       | 19        | 22    |
| 1977 | 36,039                   | 20,632    | 56,671 | 1,496                    | 1,041     | 2,537 | 24                       | 20        | 22    |
| 1978 | 35,555                   | 20,741    | 56,296 | 1,472                    | 1,042     | 2,414 | 24                       | 20        | 22    |
| 1979 | 34,672                   | 21,014    | 55,686 | 1,469                    | 1,019     | 2,488 | 23                       | 21        | 22    |
| 1980 | 34,036                   | 21,198    | 55,234 | 1,483                    | 1,034     | 2,517 | 23                       | 21        | 22    |
| 1981 | 33,395                   | 21,448    | 54,843 | 1,492                    | 1,114     | 2,606 | 22                       | 19        | 21    |
| 1982 | 32,061                   | 21,696    | 53,757 | 1,388                    | 1,115     | 2,503 | 23                       | 19        | 21    |
| 1983 | 30,748                   | 22,037    | 52,785 | 1,335                    | 1,125     | 2,460 | 23                       | 19        | 21    |

BARRADOS

SECOND EDUCATION AND TRAINING PROJECT

School Enrollments by Grade

Historical Figures (1980-1984) and Projections (1985-1990)

|  | Age          | 1980 Census<br>School Age<br>Population | Enrollments   |               |               |               | 1985/86               |               | 1990                  |               |
|--|--------------|---|---------------|---------------|---------------|---------------|-----------------------|---------------|-----------------------|---------------|
|  |              |   | 1981/82       | 1982/83       | 1983/84       | 1984/85       | Projected<br>Populatn | Enrollmt      | Projected<br>Populatn | Enrollmt      |
| Reception                              | 4-5          | 4,511                                   | 3,793         | 3,119         | 3,094         | 3,282         | 4,300                 | 3,400         | 4,500                 | 3,800         |
| Infants A                              | 5-6          | 4,857                                   | 5,074         | 5,029         | 4,791         | 4,559         | 4,300                 | 4,300         | 4,000                 | 4,000         |
| Infants B                              | 6-7          | 4,812                                   | 4,743         | 4,681         | 4,588         | 4,346         | 4,500                 | 4,550         | 4,100                 | 4,100         |
| <b>Total Infants<br/>and Reception</b> | <b>4-7</b>   | <b>14,180</b>                           | <b>13,610</b> | <b>12,829</b> | <b>12,473</b> | <b>12,186</b> | <b>13,100</b>         | <b>12,250</b> | <b>12,600</b>         | <b>11,900</b> |
| Class 1                                | 7-8          | 5,288                                   | 4,875         | 4,830         | 4,638         | 4,487         | 4,500                 | 4,350         | 4,200                 | 4,200         |
| Class 2                                | 8-9          | 5,293                                   | 5,161         | 4,853         | 4,768         | 4,545         | 4,500                 | 4,450         | 4,200                 | 4,250         |
| Class 3                                | 9-10         | 5,057                                   | 5,419         | 5,126         | 4,825         | 4,782         | 4,500                 | 4,550         | 4,200                 | 4,300         |
| Class 4                                | 10-11        | 4,820                                   | 5,531         | 5,686         | 5,318         | 4,789         | 4,600                 | 4,800         | 4,300                 | 4,500         |
| <b>Total Juniors</b>                   | <b>7-11</b>  | <b>20,458</b>                           | <b>20,986</b> | <b>20,495</b> | <b>19,549</b> | <b>18,594</b> | <b>18,000</b>         | <b>18,150</b> | <b>16,900</b>         | <b>17,250</b> |
| <b>Infants &amp; Juniors</b>           | <b>4-11</b>  | <b>34,638</b>                           | <b>34,596</b> | <b>33,324</b> | <b>32,022</b> | <b>30,780</b> | <b>31,200</b>         | <b>30,400</b> | <b>29,500</b>         | <b>29,400</b> |
| Form 1                                 | 11-12        | 4,914                                   | 5,763         | 5,906         | 5,858         | 5,592         | 4,700                 | 4,800         | 4,400                 | 4,400         |
| Form 2                                 | 12-13        | 5,150                                   | 5,053         | 5,203         | 5,466         | 5,560         | 5,000                 | 5,300         | 4,600                 | 4,500         |
| Form 3                                 | 13-14        | 5,279                                   | 5,149         | 5,265         | 5,041         | 5,230         | 5,200                 | 5,300         | 4,600                 | 4,600         |
| Form 4                                 | 14-15        | 5,464                                   | 4,839         | 5,144         | 4,895         | 5,039         | 5,300                 | 5,200         | 4,600                 | 4,600         |
| Form 5                                 | 15-16        | 5,613                                   | 5,754         | 5,993         | 6,053         | 6,247         | 5,400                 | 5,300         | 4,700                 | 4,800         |
| Form 6                                 | 16-17        |   | 465           | 519           | 412           | 494           | -                     | 500           | -                     | 500           |
| <b>Total Seniors</b>                   | <b>11-17</b> | <b>26,420</b>                           | <b>27,023</b> | <b>28,030</b> | <b>27,715</b> | <b>28,162</b> | <b>25,200</b>         | <b>25,900</b> | <b>22,900</b>         | <b>23,600</b> |
| <b>Total</b>                           | <b>4-17</b>  | <b>61,058</b>                           | <b>61,619</b> | <b>61,354</b> | <b>59,737</b> | <b>58,942</b> | <b>56,400</b>         | <b>56,300</b> | <b>52,400</b>         | <b>53,000</b> |

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

School Enrollments (1983/84)

By Type of School and by Level

| Level        | Government                             |           |                        |        | Private  |                  |       | Total  |
|--------------|--|-----------|------------------------|--------|----------|------------------|-------|--------|
|              | Primary<br>(Including<br>Primary Tops) | Secondary | Senior<br>(Vocational) | Total  | Assisted | Non-<br>Assisted | Total |        |
| Reception    | 2,356                                  | -         | a/                     | 2,356  | -        | 738              | 738   | 3,094  |
| Infants A    | 4,250                                  | -         | -                      | 4,250  | -        | 541              | 541   | 4,791  |
| Infants B    | 4,720                                  | -         | -                      | 4,072  | -        | 516              | 516   | 4,588  |
| Subtotal (I) | 10,678                                 | -         | -                      | 10,678 | -        | 1,795            | 1,795 | 12,473 |
| Class 1      | 4,209                                  | -         | -                      | 4,209  | -        | 429              | 429   | 4,638  |
| Class 2      | 4,338                                  | -         | -                      | 4,338  | -        | 430              | 430   | 4,778  |
| Class 3      | 4,382                                  | -         | -                      | 4,382  | -        | 443              | 443   | 4,825  |
| Class 4      | 4,875                                  | -         | -                      | 4,875  | -        | 443              | 443   | 5,318  |
| Subtotal (J) | 17,804                                 | -         | -                      | 17,804 | -        | 1,745            | 1,745 | 19,549 |
| I+J          | 28,482                                 | -         | -                      | 28,482 | -        | 3,540            | 3,540 | 32,022 |
| Form 1       | 715                                    | 3,717     | 153                    | 4,585  | 1,243    | 20               | 1,263 | 5,848  |
| Form 2       | 669                                    | 3,604     | 172                    | 4,445  | 1,006    | 15               | 1,021 | 5,466  |
| Form 3       | 449                                    | 3,706     | 171                    | 4,326  | 703      | 12               | 715   | 5,041  |
| Form 4       | 287                                    | 3,953     | 67                     | 4,307  | 563      | 25               | 588   | 4,895  |
| Form 5       | 89                                     | 5,062     | 112                    | 5,263  | 727      | 63               | 790   | 6,053  |
| Form 6L      | -                                      | 229       | -                      | 229    | -        | -                | -     | 229    |
| Form 6U      | -                                      | 183       | -                      | 183    | -        | -                | -     | 183    |
| Subtotals    | 2,209                                  | 20,454    | 675                    | 23,338 | 4,242    | 135              | 4,377 | 27,715 |
| Total        | 30,691                                 | 20,454    | 675                    | 51,820 | 4,242    | 3,675            | 7,917 | 59,737 |

Source: Planning Office - Ministry of Education

a/ Pre-vocational training only.

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

Impact of the Project on Public Recurrent Expenditures

Outlook for Current Expenditures on Education

1. Recent Trends. Two adjustments should be made to the recurrent cost estimates of the Ministry of Education and Culture (MOE) to bring them into line with conventional estimates of education expenditure. The school meals service, which absorbs about 8% of the budget, should be excluded, and expenditure on uniforms and secondary school textbooks, which appear as items of capital expenditure, should be included. During the past five years public recurrent expenditure on education, with these adjustments, has amounted to between 18% and 21% of total public recurrent expenditure, the lowest proportions occurring during FY 1981/82 and FY 1982/83.

2. Outlook for FY 1985/86. Adjusted expenditure is expected to increase in nominal terms by 16.6% in FY 1985/86, significantly faster than total public recurrent expenditure, but this growth reflects the combined effect of the large wage settlement and the labour-intensity of education, rather than any especially favorable treatment of the sector.

3. Medium term outlook. Both the MOE and the Ministry of Finance and Planning see education retaining its present share of public recurrent expenditure for the foreseeable future. One argument is that the bulk of its expenditure is in the form of wages and there is therefore little scope for manoeuvre. On closer inspection, however, three factors will have a major effect on education expenditure over the next five years and will introduce considerable scope for restructuring: falling primary and secondary school rolls, improvements in student-teacher ratios, and the partial absorption of the private sector.

(a) Falling school rolls

4. At present the average age cohort for primary school children is about 4,700 and that for secondary school children about 5,000. Over the next five years both will fall to about 4,300 (population projections in Volume I of the Loan Request). This reduction reflects a fall in the birth rate from 33 per thousand in 1960 to 16 per thousand in 1980 caused partly by the emigration to Britain in the 1950s and 1960s of those who are now young adults, partly by the activities of the Barbados Family Planning Association, and partly by the effect of a rising standard of living. Taken in isolation, and as a rough approximation, the falling population of school children will permit a fall of 8% in recurrent expenditure on primary education, 15% in that on secondary education, and 8% in total recurrent expenditure on education.

(b) Improvement in student-teacher ratios

5. At present the student-teacher ratio for government pre-primary and primary schools is 23:1 and for secondary schools 19:1. If the present process of rationalizing both levels of education led to class sizes of 35 and student-teacher ratios of, say, 29:1 in primary education and 23:1 in secondary education, there would be (again, as a rough approximation) a reduction of 20% in expenditure on primary education, 16% in that on secondary education, and 12% overall.

(c) Partial absorption of the private sector

6. At present 14% of pre-primary school children, 9% of primary school children, and 16% of secondary school children attend private schools (data for the school year 1983/84). It is clear that a large proportion of those now attending private secondary schools do so because they have been unable to secure a place in a government school. The MOE recognizes that it is providing insufficient places and distributes bursaries to 2,900 students to attend the "assisted" private schools. It also pays the salaries of some of the teachers at these schools and provides further grants, the total costs being 6% of total recurrent expenditure on secondary education.

7. Several of the assisted private schools have a reputation for excellence, but the majority are of inferior quality. They have a much higher proportion of untrained teachers than government schools and inferior examination results. Only 36% of their graduates obtained the School Leaving Certificate or an O-level, as opposed to 76% in government schools. (This last comparison is of course biased by the fact that many of the children attending the private schools do so solely because they were unsuccessful in the 11+ examination).

8. In the case of primary schools the position is less clear cut, all children having a right to a place in a government school. However, it seems likely that the demand for private education will wane over the next few years if the quality of government schools improves and the real cost of private education increases as a result of the rise in real wages.

9. Assuming, somewhat arbitrarily, that half of pre-primary and primary school children, and two-thirds of secondary school children, who would otherwise have held places in private schools, transfer to the government schools as more places become available and quality improves, expenditures on primary education would increase by 5% and on secondary education by 8%, holding other factors constant. The secondary figure assumes that all bursary-holders will be absorbed by the government schools and the bursary program discontinued. The combined effect would be to increase total public recurrent expenditure on education by 4%. Taking the three factors together, expenditure on primary education would fall by 23%, expenditure on secondary education by 22%, and total recurrent expenditure on education by 15%.

10. The primary school calculations imply that there will be a demand for about 1,007 teachers in five years' time. In school year 1983/84 there were 1,335 teachers in post and a further 196 on leave, some being trained at Erdiston Teacher Training College, making a total of 1,531 in all. With only 120 teachers aged over 50 in 1983/84, the attrition rate through retirement

cannot be expected to be more than about 12 each year. The wastage rate for other causes also appears to be low, a total of 28, including those retiring, leaving the service in 1982/83. A reduction of the staff to 1,007 over a period of five years would require the wastage rate to be increased by about 75 teachers per year. From the point of view of the profession as a whole the situation will be aggravated by the loss of jobs in the private sector. The Barbados Union of Teachers, a strong body, is already aware of the threat to jobs and is proposing a number of measures which would sustain the demand for teachers: the creation of senior "departmental" teaching positions with partial teaching loads, a reduction in the number of teaching hours per day for all teachers, the introduction of special "remedial" classes, etc.

11. Similarly, the number of teachers in secondary education would have to be trimmed if the student-teacher ratio of 23:1 were to be attained. In 1983/84 there were, 1,085 teachers in post in government secondary schools and a further 76 on leave, making 1,161 in all. A 23:1 student-teacher ratio implies a requirement of only 874 in 1990.

12. The school meals service. There is one further opportunity for structural change in the MOE budget. Though not strictly speaking expenditure on education, the school meals service is counted as part of its current expenditure and represents 8% of it. Its budget amounts to approximately US\$160 per child in primary and pre-primary education, that is, US 85 cents per school day (schools function for 190 days each year).

13. The school meals program was originally introduced as a means of improving the nutrition of primary school children. It is not evident that it is still necessary for that objective, since nutrition in Barbados appears to be excellent, and the service is expensive in terms of its delivery costs; only 40% of the budget is actually spent on wages and materials, the bulk of the remainder going on wages. While a straight forward abolition is probably not a feasible option politically, it might be possible to find an acceptable compromise which would both satisfy parents and release resources for other purposes. For example, parents could be given a credit of US 50 cents per day per child for the materials for a packed lunch and a US 35 cents per day credit for purchasing books. The food credit would be 50% more than present expenditure on materials for the lunches, and the book credit would be worth US\$66 per year. At present primary school children spend only about US\$20 per year on textbooks, notebooks, pencils, etc.

14. One qualification to this discussion: a large proportion of the wage cost of the school meals service is spent on the wages of persons who would otherwise probably have difficulty in obtaining employment, given the current 17% rate of unemployment; accordingly the shadow cost of the service may be substantially less than the accounting cost.

15. Conclusion. In summary, if the MOE retains its present share of public recurrent expenditure, there will in principle be ample scope for a reallocation of its resources from wages to materials. In primary schools, where textbooks and equipment are in short supply, this could have a significant effect on the quality of education without increasing its budget. The same is also true of secondary education, to a lesser extent. The reallocation is however likely to be frustrated by the difficulty in finding alternative employment for surplus teachers and inducing them to move. Indeed, the most likely outcome is that overmanning will increase

rather than decrease in the short term and that when these two levels are finally streamlined the resources released will not be reallocated to materials but will be transferred to tertiary education, for which there will inevitably be a growing social demand. It is therefore important that the Project should at least not exacerbate the overmanning problem, and ideally it should encourage a shift of resources within these two levels to materials before the appetite of tertiary education becomes voracious.

Impact of the Project on Recurrent Expenditure on Primary Education

16. The rate of return to the type of amalgamations under consideration (complete replacement of the existing schools with new schools) was estimated at 13.5% in Annex 7, page 6. The annual return, all of which would be in the form of a reduction of recurrent expenditures, would therefore be of the order of US\$540,000 per year, a figure which represents 3.3% of MOE recurrent expenditure on primary education and 1.1% of its total recurrent expenditure. The potential savings in recurrent expenditure would be of the same order of magnitude if the amalgamations took any of the other forms involving the re-use and/or expansion of existing schools. For example, the most obvious alternative, the expansion of an existing school to accommodate all the children, would yield the same saving in recurrent expenditure at a lower capital cost and a higher rate of return. In practice, however, it is unlikely that the full potential savings will be realized, for the reasons outlined above, and it is not possible to guess what kind of compromise might be achieved.

Impact of the Project on Recurrent Expenditure on Secondary Education

17. Wotton/Kingsland School. In the short run, provided that it is built quick enough, the construction of Wotton School would increase MOE recurrent expenditure by about US\$280,000. Taking the data for the newer government secondary schools as a guide, public recurrent expenditure per student would be of the order of US\$696 per year, including a provision for textbooks. There would however be a saving in subsidies to the "assisted" schools. In 1985/86 the MOE is sponsoring 2,900 students at these schools, paying bursaries towards fees and making some direct grants to the schools. The total budget allocation for this purpose is US\$1,354,000, that is, US\$467 per student. Assuming that the direct payments are reduced in proportion to the number of sponsored students, the net increment in recurrent expenditure on transferring a student from an assisted school to Wotton will be US\$229 per student. Total enrollment at Wotton is to be 1,225 students, and hence the total increment in recurrent expenditure would be US\$280,525. This figure represents 1.6% of the recurrent expenditure of the MOE on secondary education and 0.5% of its total recurrent expenditure.

18. In the longer run the net effect of public recurrent expenditure will be minimal. With falling school rolls it will be possible to provide places in the existing government schools for all students, sponsored or otherwise, who wish to take them up. The construction of Wotton will therefore have negligible effect on direct teaching costs. It will simply be responsible for the reallocation of teachers in the "primary tops". The chief additional cost will be overhead expenditure on new administrative and

maintenance staff. To some extent the additional overhead expenditure may be offset by reduced need for maintenance expenditure in the existing schools.

19. Harrison and Queens. The Project provides for the creation of 70 new places at Harrison College and 84 at Queen's College. The same remarks, on smaller scale, apply to these items.

Impact of the Project on Recurrent Expenditure on Vocational Training

20. Samuel J. Prescod Polytechnic (SJPP). The additional recurrent costs, when the Project component is fully operational with the additional equipment in the 1987/88 school year would be about BDS\$163,000 (US\$81,500) in constant 1985 prices (July 1, 1985). This represents an increase of about 5% over the SJPP's recurrent budget allocation of BDS\$3.48 million for the 1985/86 school year, which, in itself, represented an increase over 1984/85 of 24%. Recurrent costs per student in 1984/85 was BDS\$3,125 (US\$1,562) which in view of the types of programs is adequate.

21. Barbados Community College (BCC). The additional recurrent costs, when the BCC is fully operational in 1989/90 in the new and fully equipped facilities would be about BDS\$1.28 million (US\$0.64 million) in constant 1985 prices (July 1, 1985), this represents about 12% of the projected 1989-90 budget: In view of the Government's high priority for technician training out of the "payroll levy" be inadequate. The incremental recurrent costs are estimated as follows:

Projected Increase in Student Enrollment by Division

|                        | <u>Full-Time</u> |   | <u>Part-Time b/</u> |  | <u>Total b/</u> |
|------------------------|------------------|---|---------------------|--|-----------------|
| Computer Science       | 30               |   | 25                  |  |                 |
| Fine Arts/Applied Arts | 130              |   | 20                  |  |                 |
| Health Science         | 90 a/            |   | 20                  |  |                 |
| Technology             | 100              |   | 45                  |  |                 |
| Commerce               | 50               |   | —                   |  |                 |
| Total                  | 400              | + | 110                 |  | 510             |

a/ Of which costs for 80 have been budgeted under Ministry of Health and which would be transferred to the College.

b/ In Full-Time Equivalent (FTE).

Per capita cost of educating a student at the BCC: US\$1,250 (1984-85)

Projected additional recurrent cost due to increased student enrollment:  
US\$1,250 x 510 FTE = US\$ 637,500 in 1985 prices

Less transfer of about BDS\$200,000 (US\$100,000) from Ministry of Health Budget to the BCC to cover cost of transfer of Health Sciences training.

Net additional recurrent costs: US\$637,500 - US\$100,000 = US\$537,500

1984/85 Recurrent Cost Budget - BDS\$4,173,000

1989/90 Estimated Recurrent Budget- BDS\$5,448,000

NTB Skills Training Centers

22. Finance. The financing of NTB's operations are from Government grants, allocations from the National Training Fund and very minor amounts from cost recovery training schemes. The latter will be expanded significantly when the new centers become operational. The National Training Fund is annually replenished by a training levy of one-half of one percent on all private sector payrolls (increased from one-fourth of one percent in June 1985). This increased levy is expected to generate about BDS\$4 million in FY1986, of which 50-60% is expected to be allocated to NTB. In FY84 about 54% of NTB's total budget revenues of BDS\$1.68 million was from the training levy. This revenue was for the recurrent costs of the NTB and included payments into an equipment depreciation fund to amortise capital investments in equipment over a period of 10 years (motor vehicles - 5 years). Any significant capital investment, however, requires a special capital allocation from the Ministry of Finance.

23. Recurrent costs of training in FY1985 (year ending March 31, 1985) per student was about BDS\$645 for each apprenticeship trainee. The higher costs for the former is a result of the BDS\$35/week/trainee stipend for the participants (who were all unemployed) and the fact that the NTB carried the entire costs. The major costs of apprenticeship training is carried by the employer.

24. Marginal Recurrent Costs of the NTB Component. The additional recurrent costs resulting from the NTB component would be significant as they would be replacing existing small and inefficient training centers offering only one or two training programs in each. The new centers would offer a total of 24 training programs running simultaneously, and would result in a net increase of at least 10 instructors for day classes and as many as 18 (9 FTE) more for the evening classes. Based upon mid-1985 costs, the estimated additional recurrent costs of this component, when the four centers are operational in 1988/89, would be about BDS\$1.26 million (US\$0.63) representing about 24% of their projected total budget for that year and about 11% over the 1985-86 budget request. Detailed below are estimates (in 1985 prices) of the incremental recurrent expenditures of four centers (including the existing unit which would be provided supplementary equipment under the Project).

Estimates of Annual Incremental Expenditures of Four NTB Centers  
(1985 Prices)

| <u>Trainee Allowances</u>   | <u>Costs in BDS\$</u> |
|---|-----------------------|
| 24 trades x 15 trainees x 42 weeks x BDS\$35 per week   | 529,000               |
| <u>Training Materials</u>   |                       |
| 24 Trades x 3 Modules x BDS\$3,000 per module   | 216,000               |
| Books and other Materials (2.5% of materials)   | 5,400                 |
| Supplies, Repairs, Replacements and Cleaning (10% of materials)   | 21,600                |
| In-Plant Training of Demonstrators  | 5,000                 |
| TOTAL   | <u>248,000</u>        |
| <u>Utilities</u>  |                       |
| Water: 4 new centers at BLS\$4,000 per year   |                       |
| Electricity: 4 new centers at BDS\$4,800 per year   |                       |
| Telephones: 4 new centers at BDS\$900 per year  |                       |
| TOTAL   | <u>77,200</u>         |
| This estimate is based on the present cost of utilities which are paid by the NTB for its Skills Training Programs. |                       |
| 10 Demonstrators @ \$16,452 per year each <u>c/</u>   | 164,520               |
| 10 Maids @ \$9,744 per year each  | 97,440                |
| 4 Maintenance Supervisors @ \$16,452 per year each  | 65,808                |
| 4 Gardeners @ \$9,744 per year each   | 38,976                |
| 4 Security Officers @ \$9,888 per year each   | 39,552                |
| TOTAL   | <u>406,296</u>        |
| GRAND TOTAL   | <u>BDS\$1,260.696</u> |

c/ Additional required above the 14 existing full-time instructors and varying numbers of part-time instructors.

Summary of Incremental Recurrent Costs of the Project  
(Cost in US\$ millions)

| <u>Institution</u>  | <u>Recurrent Budget</u> |                | <u>Incremental Recurrent Cost of Project</u> |                   |                   |
|---------------------|-------------------------|----------------|--|-------------------|-------------------|
|                     | <u>1984/85</u>          | <u>1985/86</u> | <u>Amount</u>                                | <u>% of 84/85</u> | <u>% of 85/86</u> |
| <u>MOE:</u> Primary | 19.00                   | 22.32          | -0.27  | - 1.4             | - 1.2             |
| Secondary           | 19.97                   | 24.44          | +0.31  | + 1.6             | + 1.3             |
| Vocational Training | 1.86                    | 2.30           | +0.08  | + 4.3             | + 3.5             |
| BCC                 | 2.00                    | 2.41           | +0.54 <u>d/</u>                              | +27.0             | +22.4             |
| Others              | <u>39.10</u>            | <u>19.53</u>   | <u>n.a.</u>                                  | <u>---</u>        | <u>---</u>        |
| Subtotal/MOE        | 61.38                   | 71.00          | +0.66  | + 1.07            | +0.93             |
| <u>MOL/NTB:</u>     | 0.50                    |                | +0.63  | +26.0             |                   |

d/ Net increase after taking into account transfer of operational budget for health sciences training from the Ministry of Health to MOE.

Unit Costs in Secondary Education and the Cost of Vocationalization25. Aggregate Estimates of Unit Costs (in US\$, converted at BDS\$2 = US\$1)Table 1: Secondary Education Unit Costs

|                                     | <u>Total</u> | <u>Students</u> | <u>Unit Cost</u> |
|-------------------------------------|--------------|-----------------|------------------|
| <u>Public recurrent costs</u>       |              |                 |                  |
| Older government schools            | 6,337,000    | 6,989           | 906              |
| Newer Government schools            | 9,563,000    | 14,157          | 675              |
| Textbooks                           | 450,000      |                 |                  |
| Subtotal, Public Costs              | 16,350,000   | 21,146          | <u>773</u>       |
| <u>Private recurrent costs</u>      |              |                 |                  |
| Uniforms                            |              |                 | 120              |
| Textbooks, notebooks, etc.          |              |                 | 40               |
| Bus fares                           |              |                 | 135              |
| Examinations                        |              |                 | 8                |
| Opportunity cost of income foregone |              |                 | 0                |
| Subtotal Private Cost               |              |                 | <u>303</u>       |
| TOTAL recurrent cost                |              |                 | <u>1,076</u>     |
| <u>Amortized capital costs</u>      |              |                 |                  |
| Construction and civil works        |              |                 | 292              |
| Furniture                           |              |                 | 17               |
| Equipment                           |              |                 | 54               |
| TOTAL capital cost                  |              |                 | <u>363</u>       |
| TOTAL recurrent and capital cost    |              |                 | <u>1,439</u>     |

26. Public recurrent costs. The data relate to the 21 government secondary schools for FY1983/84. The older government schools incur greater public recurrent expenditure per student but this may largely be attributed to the fact that they employ a much higher proportion of graduate teachers (86%, as opposed to 46%), and graduate teachers are relatively highly paid. The student-teacher ratios are similar (older schools, 17.0:1; newer schools, 19.4:1). Graduate teachers are graduates of the Erdiston Teacher Training College. The cost of textbooks was taken from the MOE of Education capital budget.

27. Private recurrent costs. For the same reasons as in the case of primary education, it is assumed that the opportunity cost of income foregone is zero. Of the 1,225 children who had left secondary school in 1983/84, who had not emigrated and whose current activity was known, only 241 were in employment and the great majority of these were aged 17 or more, that is, were graduates or close to graduation (Ministry of Education Digest of Statistics 1983/84, Table 28). The examinations item is the US\$40 charge for the school-leaving examinations held at the end of the five years.

28. Capital costs. The capital cost data are from appraisal estimates of the new Wotton secondary school. The estimates of the amortization costs assume a 25-year lifetime for construction and civil works, a 15-year lifetime for furniture, a 10-year lifetime for equipment, and a 10% interest rate per year. The corresponding amortization rates are therefore 11%, 13% and 16% per year, respectively.

29. The Cost of Vocationalizing Secondary Education. The following paragraphs provide estimates of the incremental cost of increasing the vocational content of secondary education in Barbados. The estimates show the cost of replacing one student-hour per day of ordinary academic classroom teaching by one student-hour of vocational teaching, for the main types of vocational education. For reference, the incremental cost of a student-hour of science teaching is also calculated. No allowance has been made for repercussions on administrative costs or other overheads. The calculations employ the following assumptions: (a) students spend seven hours per day in school; (b) the class size for ordinary lessons is 30 for workshops and laboratory work 15 (c) teachers, technical instructors, classrooms and workshops are fully utilized; (d) the capital costs (construction, furniture and equipment) are based on appraisal estimates of the new Wotton school.

30. Instructor costs. The conversion of one hour per day of classroom teaching into one hour of workshop teaching requires one additional teacher for one-seventh of the day (two workshop instructors instead of one classroom teacher, for one hour per day). Since public recurrent expenditure per student in 1983/84 was US\$773 (Table 1) and 90% of this was wage costs, the wage cost per student was US\$696. The cost of an additional teacher, one-seventh time, is therefore approximately US\$100 per student-year. This estimate is biased upwards because the public expenditure figure includes administrative and other non-teaching wage costs. The Barbados Estimates 1985/86 indicate that teachers' salaries account for approximately 85% of the wage costs of the government secondary schools. The marginal teacher cost of increasing vocational teaching by one hour per day is therefore of the order of US\$85 per student-year.

31. Capital costs. Table 2 presents the Wotton data for three types of vocational training, for science laboratory work and for classroom teaching. The cost of two other workshops (auto and electrical) are based on these data. The science laboratory costing assumes that the students will work in pairs and makes provisions for storeroom space. Construction cost is estimated at US\$536 per sq.m. for workshops, US\$714 per sq.m. for laboratory facilities and US\$629 per sq.m. for classrooms (including the cost of buildings, site work, professional fees, and physical contingencies of 10%). Furniture is costed at 10% of building cost and the cost of equipment is based on standard kits. The amortization assumptions are as stated in para. 28. The capital cost per student-year of switching one hour per day of classroom time to workshop time is one-seventh of the amortized cost per student-place of the workshop, less the corresponding figure for a classroom place.

Table 2: Capital Costs of Workshop and Classroom Places (US\$)

|                             | <u>Workshop<br/>Cost</u> | <u>Places</u> | <u>Cost/<br/>Place</u> | <u>Amortized<br/>Cost/Place</u> |
|-----------------------------|--------------------------|---------------|------------------------|---------------------------------|
| <b>Woodwork</b>             |                          |               |                        |                                 |
| Construction (100 sq.m.)    | 53,604                   | 20            | 2,680                  | 295                             |
| Furniture                   | 4,125                    |               | 206                    | 27                              |
| Equipment                   | 20,000                   |               | 1,000                  | 160                             |
| <b>Total</b>                | <u>77,729</u>            |               | <u>3,886</u>           | <u>482</u>                      |
| <b>Metalwork</b>            |                          |               |                        |                                 |
| Construction (100 sq.m.)    | 53,604                   | 20            | 2,680                  | 295                             |
| Furniture                   | 4,125                    |               | 206                    | 27                              |
| Equipment                   | 30,000                   |               | 1,500                  | 240                             |
| <b>Total</b>                | <u>87,729</u>            |               | <u>4,386</u>           | <u>562</u>                      |
| <b>Basic Auto</b>           |                          |               |                        |                                 |
| Construction (120 sq.m.)    | 64,325                   | 20            | 3,216                  | 354                             |
| Furniture                   | 4,950                    |               | 248                    | 33                              |
| Equipment                   | 25,000                   |               | 1,250                  | 199                             |
| <b>Total</b>                | <u>94,275</u>            |               | <u>4,714</u>           | <u>586</u>                      |
| <b>Electric/Electronics</b> |                          |               |                        |                                 |
| Construction (80 sq.m.)     | 42,884                   | 20            | 2,144                  | 236                             |
| Furniture                   | 3,300                    |               | 165                    | 22                              |
| Equipment                   | 15,000                   |               | 750                    | 120                             |
| <b>Total</b>                | <u>61,184</u>            |               | <u>3,059</u>           | <u>378</u>                      |
| <b>Technical Drawing</b>    |                          |               |                        |                                 |
| Construction (90 sq.m.)     | 56,606                   | 30            | 1,887                  | 208                             |
| Furniture                   | 4,356                    |               | 145                    | 19                              |
| Equipment                   | 9,000                    |               | 300                    | 48                              |
| <b>Total</b>                | <u>69,962</u>            |               | <u>2,332</u>           | <u>275</u>                      |
| <b>Science</b>              |                          |               |                        |                                 |
| Construction (90 sq.m.)     | 64,325                   | 30            | 2,144                  | 236                             |
| Furniture                   | 4,950                    |               | 165                    | 22                              |
| Equipment                   | 20,000                   |               | 667                    | 107                             |
| <b>Total</b>                | <u>89,340</u>            |               | <u>2,976</u>           | <u>364</u>                      |
| <b>Classroom</b>            |                          |               |                        |                                 |
| Construction (54 sq.m.)     | 33,964                   | 30            | 1,132                  | 125                             |
| Furniture                   | 3,530                    |               | 118                    | 15                              |
| <b>Total</b>                | <u>37,494</u>            |               | <u>1,250</u>           | <u>140</u>                      |

**Table 3: Cost of One Additional Workshop/Laboratory Hour per day, per student-year (US\$)**

| <u>Workshop</u>             | <u>Amortized Cost/Place</u> | <u>1/7 Amortized Cost</u> | <u>Classroom Cost</u> | <u>Marginal Capital Cost</u> | <u>Instructor Cost</u> | <u>Total Cost</u> |
|-----------------------------|-----------------------------|---------------------------|-----------------------|------------------------------|------------------------|-------------------|
| Woodwork                    | 482                         | 69                        | 20                    | 49                           | 85                     | 134               |
| Metalwork                   | 562                         | 80                        | 20                    | 60                           | 85                     | 145               |
| Basic auto                  | 586                         | 84                        | 20                    | 64                           | 85                     | 149               |
| Electricity/<br>Electronics | 378                         | 54                        | 20                    | 34                           | 85                     | 119               |
| Tech. drawing               | 275                         | 39                        | 20                    | 19                           | 85                     | 104               |
| Science Lab                 | 364                         | 52                        | 20                    | 32                           | 85                     | 117               |

32. Incremental cost by workshop. Table 3 combines the estimates of marginal capital cost and marginal instructor cost for each type of workshop and for science laboratory work. The marginal cost of converting one hour per day of classroom teaching into, say, woodwork instruction is US\$155 per student-year. Since the average cost of a student-year is US\$1,439 (Table 1), this would represent an increase of 11%. The average cost of vocationalizing one hour per day is US\$130 taking the options listed. The cost of converting one hour of classroom teaching to laboratory work is 10% lower than this figure.

33. Conclusion. It appears that the cost of converting one hour of teaching per day into vocational training is equivalent to 9% of the present average of secondary education. The cost of converting it into science laboratory work would be about 10% less than the cost of vocationalization. The estimates are subject to two qualifications. First, they assume efficient use of classrooms, workshops, teachers, vocational instructors and full-size teaching groups. In practice, efficient utilization is not the norm. Second, they make no provision for the cost of materials and power used in the workshops and science laboratory, which may be 20% or more of the total cost. The estimates are therefore biased downwards and should be regarded as minimum figures.

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

Employment and Manpower Demand

1. Despite very small changes in total industrial employment between 1983 and 1984, there was considerable redistribution among sub-sectors. While the garment sub-sector had a loss of 370 jobs, there were increases of 246 in non-metallic minerals, 124 in data processing and 98 in electronics. The job increases were mainly in the higher skilled worker classifications, while the losses were mainly in the unskilled and semi-skilled classifications. Further evidence of this redistribution of employment is seen in the decline of 7% in employment in the tourism sector even though the sector had a real growth rate in GDP of 7%. These and other such employment shifts carry implications for training, especially in light of the lower population growth rate. The kinds and levels of skills required for entry level jobs in the modern sector enterprises are rapidly changing. As investment (both local and foreign) in export industries increases, the skill level requirements of both skilled workers and technicians are rapidly rising. Concurrent with this situation is a roughly corresponding increase in the levels of skills required in the service sectors, such as, transportation, communications, electricity, water, and others on which modern industry is increasingly dependent. Foreign investors in medium and higher technology industries demand relatively high levels of performance of craftsmen and technicians. They cannot and will not wait on the slow and ad hoc on-the-job training system which has been traditional in Barbados for these types of skilled manpower, nor can they afford to provide themselves the required levels of skills and still compete in international markets. If such entry level skills are not available, so that workers can be quickly upgraded on-the-job, then the potential investors will go elsewhere.

2. BIMAP's manpower projections <sup>a/</sup> from 1980 to 2000 indicate a highly significant growth in demand for the more industrially oriented and higher technological levels of trained manpower. While the study on which these data are based suffers from a number of deficiencies, among which are errors in classification between technician and professional levels (too many are classified higher than they should be), the orders of magnitude provided are helpful indicators of which areas of training need to be strengthened.

| <u>Occupation</u>           | <u>1980/85</u> | <u>1985/90</u> | <u>1990/95</u> | <u>1995/2000</u> |
|-----------------------------|----------------|----------------|----------------|------------------|
| Professional Technicians    | 1073           | 1926           | 2005           | 1968             |
| Skilled Workers:            |                |                |                |                  |
| Bookkeepers, Cashiers, etc. | 246            | 524            | 578            | 583              |
| Machine Fitters, Assemblers | 261            | 536            | 553            | 605              |
| Construction Workers        | 683            | 1789           | 1841           | 1734             |
| Plumbers, Welders, etc.     | 134            | 383            | 387            | 363              |

<sup>a/</sup> A Preliminary Report on Professional and Technical Manpower Requirements in Barbados 1980-2000. BIMAP, September 1982.

3. Mission discussions with high level officials of the Ministry of Planning and the Industrial Development Corporation, as well as visits with more than a dozen managers of major industries, resulted in verbal confirmation of the general validity of these projections. Moreover, it is expected that an "establishments survey" now under planning by the Ministry of Labor will show an even larger growth in demand for certain types of technicians and skilled workers.

4. The Government of Barbados is fully aware of the increasingly critical need for both entry level training for skilled workers and technicians and the upgrading of employed workers' technical skills. Both of these types of training require that the training take place either wholly or partly in well-equipped training centers. Consequently, the upgrading and expansion of the Samuel J. Prescod Polytechnic, the Barbados Community College (BCC), and the National Training Board (NTB) Centers are directed towards this end.

BARRADOS  
SECOND EDUCATION AND TRAINING PROJECT

Primary Schools to be Allocated

| Allocated School | Total <sup>a/</sup><br>Planned<br>Capacity | Projected Enrollment 1990 |         |      |       | Planned Staffing Profile |                      |                               |                         | Student/<br>Teacher Ratio |      | Order<br>of<br>Priority | Remarks  |
|------------------|--|---------------------------|---------|------|-------|--------------------------|----------------------|-------------------------------|-------------------------|---------------------------|------|-------------------------|--|
|                  |  | Recept.                   | Infants | Jrs. | Total | Teachers                 |                      | Nutrition<br>& Other<br>Staff | Recept.<br>&<br>Infants | Jrs.                      |      |                         |  |
|                  |  |                           |         |      |       | Head<br>Teach            | Recept.<br>& Infants |                               |                         |                           |      |                         |  |
| St. Mary's       | 420  | 60                        | 120     | 240  | 420   | 1                        | 6                    | 9                             | 6                       | 1:30                      | 1:27 | 1                       | To achieve efficiency:<br>do not accept outsiders;<br>move children and their<br>teachers (50K) from<br>Wesley (250) and West-<br>bury (50); principal to<br>do remedial work. |
| Hyllaby          | 360  | 40                        | 100     | 190  | 330   | 1                        | 6                    | 8                             | 5                       | 1:23                      | 1:24 | 5                       |  |
| St. Augustine    | 420  | 30                        | 120     | 240  | 390   | 1                        | 5                    | 9                             | 5                       | 1:30                      | 1:27 | 4                       |  |
| St. Matthias     | 420  | 20                        | 120     | 240  | 380   | 1                        | 5                    | 9                             | 5                       | 1:28                      | 1:27 | 2                       |  |
| Salah            | 360  | 50                        | 90      | 180  | 320   | 1                        | 5                    | 8                             | 5                       | 1:28                      | 1:23 | 8                       | Principal to do remedial<br>work. Large hall for<br>infants and reception.   |
| Mt. Tabor        | 360  | 40                        | 110     | 210  | 360   | 1                        | 5                    | 8                             | 5                       | 1:30                      | 1:26 | 7                       | Half of enrollment from<br>Bethesda should be<br>accommodated. Principal<br>to do remedial work.   |
| Speightstown     | 360  | 40                        | 100     | 200  | 340   | 1                        | 5                    | 8                             | 5                       | 1:30                      | 1:25 | 6                       | Principal to do remedial<br>work.  |
| Bayley's         | 420  | 50                        | 110     | 220  | 380   | 1                        | 5                    | 8                             | 6                       | 1:32                      | 1:27 | 9                       | Principal to do remedial<br>work.  |
| Black Bass       | 360  | 20                        | 90      | 180  | 290   | 1                        | 4                    | 8                             | 5                       | 1:27                      | 1:23 | 10                      |  |
| St. Stephens     | 840  | 50                        | 220     | 440  | 710   | 1                        | 10                   | 17                            | 8                       | 1:27                      | 1:26 | 3                       |  |
| Existing Totals  |  |                           |         |      |       | 23                       | 70                   | 104                           | 75                      |                           |      |                         |  |
| Projected Totals | 4320                                       |                           |         |      |       | 10                       | 56                   | 92                            | 55                      |                           |      |                         |  |
| Savings          |  |                           |         |      |       | 13                       | 14                   | 12                            | 20                      |                           |      |                         |  |

<sup>a/</sup> Capacities are based on actual number of students accommodated in standard modular classroom designs.

**BARRADOS**  
**SECOND EDUCATION AND TRAINING PROJECT**  
Primary Schools to be Amalgamated

| Amalgamated School | Capacity of Amalg. Schools | Existing Primary Schools to be Replaced    | Accommodation Areas             | Net Area in sq. m.    | Circulation Cost(BD\$000) |                   | Construction Cost(BD\$000) |                                | 15% Site Develop Cost | Total Civil Works Cost | Furniture Cost | TOTAL PROJECT |
|--------------------|----------------------------|--|---------------------------------|-----------------------|---------------------------|-------------------|----------------------------|--------------------------------|-----------------------|------------------------|----------------|---------------|
|                    |                            |  |                                 |                       | %                         | sq. m.            | per sq.m.                  | Sub Total                      |                       |                        |                |               |
| SAINT MARY'S       | 420                        | St. Mary's Infants<br>St. Mary's Primary   | Academic<br>Cvrd Court<br>Total | 1013<br>200<br>1213   | 35%<br>0%<br>35%          | 355<br>0<br>355   | 0.78<br>0.40<br>0.78       | 1066.69<br>80.00<br>1146.69    | 172.00                | 1318.69                | 60.00          | 63.00         |
| ST.AUGUSTINE'S     | 420                        | St. Augustine Boys<br>St. Augustine Girls  | Academic<br>Cvrd Court<br>Total | 1013<br>200<br>1213   | 35%<br>0%<br>35%          | 355<br>0<br>355   | 0.78<br>0.40<br>0.78       | 1066.69<br>80.00<br>1146.69    | 172.00                | 1318.69                | 60.00          | 63.00         |
| ST. STEPHEN'S      | 840                        | St. Stephen Juniors<br>St. Stephen Infants | Academic<br>Cvrd Court<br>Total | 1768<br>400<br>2168   | 35%<br>0%<br>35%          | 619<br>0<br>619   | 0.78<br>0.40<br>0.78       | 1861.70<br>160.00<br>2021.70   | 303.26                | 2324.96                | 136.00         | 63.00         |
| ST. MATTHIAS       | 420                        | St. Matthias Boys<br>St. Matthias Girls    | Academic<br>Cvrd Court<br>Total | 1013<br>200<br>1213   | 35%<br>0%<br>35%          | 355<br>0<br>355   | 0.78<br>0.40<br>0.78       | 1066.69<br>80.00<br>1146.69    | 172.00                | 1318.69                | 60.00          | 63.00         |
| SPEIGHTSTOWN       | 360                        | St. Peter's Girls<br>Speightstown Boys     | Academic<br>Cvrd Court<br>Total | 888<br>200<br>1088    | 35%<br>0%<br>35%          | 311<br>0<br>311   | 0.78<br>0.40<br>0.78       | 935.06<br>80.00<br>1015.06     | 152.26                | 1167.32                | 60.00          | 56.00         |
| MT. TABOR          | 360                        | Mt. Tabor<br>Cherry Grove                  | Academic<br>Cvrd Court<br>Total | 888<br>200<br>1088    | 35%<br>0%<br>35%          | 311<br>0<br>311   | 0.78<br>0.40<br>0.78       | 935.06<br>80.00<br>1015.06     | 152.26                | 1167.32                | 60.00          | 56.00         |
| BAYLEY'S           | 420                        | Bayley's<br>Strensbury<br>St. Catherine    | Academic<br>Cvrd Court<br>Total | 1013<br>200<br>1213   | 35%<br>0%<br>35%          | 355<br>0<br>355   | 0.78<br>0.40<br>0.78       | 1066.69<br>80.00<br>1146.69    | 172.00                | 1318.69                | 60.00          | 63.00         |
| BLACK BESS         | 360                        | St. Boniface<br>Black Bess                 | Academic<br>Cvrd Court<br>Total | 888<br>200<br>1088    | 35%<br>0%<br>35%          | 311<br>0<br>311   | 0.78<br>0.40<br>0.78       | 935.06<br>80.00<br>1015.06     | 152.26                | 1167.32                | 60.00          | 56.00         |
| SELAH              | 360                        | Selah<br>St. Swithin's                     | Academic<br>Cvrd Court<br>Total | 556<br>200<br>756     | 35%<br>0%<br>35%          | 195<br>0<br>195   | 0.78<br>0.40<br>0.78       | 585.47<br>80.00<br>665.47      | 99.82                 | 765.29                 | 60.00          | 56.00         |
| HILLABY            | 360                        | Hillaby<br>Turner's Hall                   | Academic<br>Cvrd Court<br>Total | 888<br>200<br>1088    | 35%<br>0%<br>35%          | 311<br>0<br>311   | 0.78<br>0.40<br>0.78       | 935.06<br>80.00<br>1015.06     | 152.26                | 1167.32                | 60.00          | 56.00         |
| <b>TOTAL</b>       | <b>4320</b>                |  | Academic<br>Cvrd Court<br>Total | 9928<br>2200<br>12128 |                           | 3475<br>0<br>3475 |                            | 10454.18<br>880.00<br>11334.18 | 1700.13               | 13034.31               | 676.00         | 595.00        |

Cost per Place (BD\$)

2623.65

3017.20 156.48

137.73

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

Unit Costs in Primary Education and  
the Rate of Return to Primary School Amalgamations

Note: All estimates are in US\$, converted at B\$2 = US\$1.

I. Aggregate Estimates of Unit Costs

Public Recurrent Costs

1. The calculations of public recurrent costs per student-year are based on 1983/84 aggregate data for all government schools providing primary education (infants, juniors and composite). In 1983/84 public recurrent expenditure on primary education was US\$15,700,000, of which US\$14,694,000 was wages and national insurance and US\$1,006,000 other recurrent expenditure (Barbados Estimates). total enrolment in that year in government primary schools, including seniors in the composite schools, was 30,691. These figures imply a unit cost of US\$512 per student-year, US\$479 for wages and salaries and US\$33 for other recurrent expenditure.

Table 1: Primary Education Unit costs

| <u>Public Recurrent costs</u>       |            |
|-------------------------------------|------------|
| Wages and National Insurance        | 479        |
| Other Recurrent Expenditure         | 33         |
| <u>Private Recurrent Costs</u>      |            |
| Uniforms, Shoes, school Bags        | 90         |
| Textbooks, Notebooks, and Pencils   | 20         |
| Opportunity Cost of Income Foregone | -0-        |
| Total Recurrent Cost                | <u>622</u> |
| <u>Amortized Capital Costs</u>      |            |
| Construction and Civil Works        | 193        |
| Furniture and Equipment             | 21         |
| Total Capital Cost                  | <u>214</u> |
| Total Recurrent and Capital Cost    | <u>836</u> |

### Private Recurrent Costs

2. The estimates of private recurrent costs are based on data obtained in school visits. No transportation costs are included since most primary school children walk to school, but by the same token provision has been made for the purchase of shoes. The opportunity cost of income foregone has been assumed to be zero since primary education is compulsory and in any case, with unemployment at 17%, it is doubtful whether a child of primary school age could command a significant wage. In this respect it is worth noting that agriculture accounts for only 8% of employment and there is therefore not even much scope for unpaid employment on family landholdings.

### Capital costs

3. Capital costs are derived from the estimated costs of a 360-student school: US\$632,500 for construction and civil works, including circulation, walling, sunscreening and site development, and US\$30,028 for furniture, the corresponding costs per student place being US\$1,757 and US\$160, respectively. The estimates of the amortization costs assume a 25-year lifetime for construction and civil works, a 15-year lifetime for furniture and equipment, and a 10% interest rate. (The amortization rates are therefore 11% and 13% per year, respectively.)

## II. School Amalgamation and Unit Costs

4. Unit costs derived from aggregate data differ from those encountered in project work in two respects. First, they take no account of the dispersal of the population and the fact that schools vary in size, and second they relate to the average rather than the marginal cost of a student-year.

5. The amalgamations in the project involve the combination of two or three (in one case, four) small schools into larger new schools of more efficient size. Discussions with head teachers on school visits revealed that the ideal size of a primary school would be between 400 and 420 places. This would permit the school to run two classes of 30 children in each of the three pre-primary grades and in each of the four primary grades. In practice the two classes in the first pre-primary grade ("reception") would be smaller than 30 since not all children eligible for admission to it (those who will reach the age of 5 during the school year) present themselves promptly at the beginning of September.

### Advantages of the Twin-Class School

6. Although in principle a school could be designed on the basis of a single class in each grade, that is, with a total enrollment of 200, the twin class system has several significant advantages.

7. First, it permits children to be streamed by ability in each grade, allowing more careful attention to be given to the needs of both fast and slow learners. In some of the schools visited, slow learners were found to be unofficially repeating a year, being seated at the back of the class

below. In one, they had been grouped into a "remedial" class and it was by no means evident that this isolation was to their advantage.

8. Second, the fluctuations in the enrollment in each grade caused by variations in the population of school age are in general less severe for a larger school with a wider catchment area.

9. Third, the fluctuations in enrollment caused by changes in parents' preferences between local schools are eliminated if the school is large enough to cater to its entire catchment area.

10. Fourth, the logistical problems caused by a teacher going on short-term leave or being absent sick are less severe in a school with twin classes..

11. Although the optimal size of a school would appear to be at least 400, half of the schools in the proposed project are for only 360 children. In most of these cases (but not all), the catchment population projected for 1990 will not be large enough to support a full-size school.

#### Amalgamation Options

12. In each of the 10 amalgamations in the project it is proposed that the existing schools should be replaced by one new school built from scratch. In some cases this may be the only practicable option, the sites and structures of the existing schools being unsuitable for re-use. But in others the re-use and expansion of one or perhaps even two of the existing schools may represent a more efficient alternative, securing the same economies of scale with a smaller capital outlay. One of the objectives of the amalgamation is to reduce teacher salary costs by improving student-teacher ratios, and it can be achieved equally well by combining infants and juniors in one school or by teaching them in separate schools. Further economies in overheads (in particular, the salaries of a head teacher and kitchen workers) can be achieved by having one school rather than two, but these savings are not necessarily as important.

13. While there is no single amalgamation pattern, the following example is representative and illustrates the range of options available and the costs involved. It also permits the calculation of the rate of return to typical options. It will be assumed that two schools with enrollments of 120 and 240 exist in the catchment area and that the following options are being considered.

- (a) (for reference) to leave the two schools as they are;
- (b) to amalgamate them into a new school with 360 children;
- (c) to amalgamate the schools, teaching the pre-primary children in the larger of the two existing schools and building a new school for the primary schoolchildren; and
- (d) to expand the larger of the existing schools, retaining its existing premises and adding extra classrooms to furnish accomodation for 360 children.

BARRADOS  
SECOND EDUCATION AND TRAINING PROJECT

Table 2: Amalgamation Options for Primary Schools

|                                     | <u>OPTION A</u>         |                | <u>OPTION B</u>    | <u>OPTION C</u>    |                         | <u>OPTION D</u>                      | <u>OPTION E</u>                   |            |
|-------------------------------------|-------------------------|----------------|--------------------|--------------------|-------------------------|--------------------------------------|-----------------------------------|------------|
|                                     | <u>Existing Schools</u> |                | <u>New Schools</u> | <u>New Schools</u> | <u>Existing Schools</u> | <u>Expansion of Existing Schools</u> | <u>Re-Use of Existing Schools</u> |            |
| <u>Places</u>                       | <u>240</u>              | <u>120</u>     | <u>360</u>         | <u>215</u>         | <u>145</u>              | <u>360</u>                           | <u>215</u>                        | <u>145</u> |
| <u>Public Recurrent Expenditure</u> |                         |                |                    |                    |                         |                                      |                                   |            |
| Head Teacher                        | 15,000                  | 15,000         | 15,000             | 15,000             | 15,000                  | Recurrent costs as for B             | Recurrent costs as for C          |            |
| Other Teachers                      | 158,400                 | 92,400         | 184,800            | 105,600            | 79,200                  |                                      |                                   |            |
| Other Wages                         | 12,600                  | 12,600         | 12,600             | 12,600             | 12,600                  |                                      |                                   |            |
| Other Costs                         | 9,120                   | 5,700          | 10,500             | 6,360              | 4,980                   |                                      |                                   |            |
| Total by School                     | <u>195,120</u>          | <u>125,700</u> | <u>222,900</u>     | <u>139,500</u>     | <u>111,780</u>          |                                      |                                   |            |
| Total by Option                     | <u>320,820</u>          |                | <u>222,900</u>     | <u>251,280</u>     |                         | <u>222,900</u>                       | <u>251,280</u>                    |            |
| <u>Capital Costs</u>                |                         |                |                    |                    |                         |                                      |                                   |            |
| Construction, and Civil Works       | —                       |                | 632,500            | 517,000            |                         | 180,000                              | 90,000                            |            |
| Furniture and Equipment             | —                       |                | 59,600             | 48,700             |                         | 18,000                               | 9,000                             |            |
| TOTAL                               |                         |                | <u>692,100</u>     | <u>565,700</u>     |                         | <u>198,000</u>                       | <u>99,000</u>                     |            |

Notes and Assumptions for Table 2. Private recurrent expenditure and expenditure on materials for meals have been excluded from the table because the per student cost is unaffected by the choice of option. Average monthly salary of head teacher is US\$1,250 and of other teachers US\$1,100. Each school requires 3 kitchen staff paid US\$320 per month and a part-time gardener/handyman paid US\$90 per month. Other costs are 5% of public recurrent expenditure (average for this item for primary education as a whole).

Option A. The existing 240-student school will in principle be running twin classes for each grade and have 14 teacher posts, with undersize classes. However, it will have eliminated one reception class, since not all children attend promptly, and one class in another grade where a fluctuation in the local birthrate has been responsible for a small number of children. The existing 120 student school will have 7 teachers, one for each grade.

Option B. The new 360 student school will require 14 teachers, one for each twin class in each grade. Capital costs are as in the Loan Proposal.

Option C. The new 215-student school will require 8 teachers, two for each of the four grades of primary school. The existing school being re-used will require 6 teachers, two for each pre-primary grade. The estimate of the cost of construction and civil works for the 215-student school assumes the same configuration as the 360-student school, the number of classrooms being 8 instead of 12 and hence the total number of sq. m. 752 instead of 920. The cost of furniture and equipment is based on the estimate for the 360-student school and reduced in the same proportion as the construction costs.

Option D. The capital costs assume the construction of 6 new classrooms on the site of the larger of the two existing schools (252 sp.m. at US\$712 per sp. m. including circulation, sunscreening, civil works, etc.), and furniture and equipment at 10% of construction cost.

Option E. The capital cost of the re-use of the existing schools - one now housing all the primary children and the other housing all the pr-primary children - assumes the construction of one new classroom on the larger site and two on the smaller one, with corresponding furniture and equipment.

14. Table 2 provides estimates of the recurrent costs and the incremental capital costs of each of these options, making appropriate assumptions. For simplicity, expenditure which would be unaffected by the choice of option (private recurrent expenditure and the cost of materials for meals) have been omitted from the calculations.

15. Table 3 presents (a) the rate of return to implementation Options B-D, in each case taking Option A as the alternative, assuming a 25-year lifetime for furniture and equipment as well as for construction; and (b) the net present value of each option, again relative to Option A, assuming a discount rate of 10% per year.

Table 3: Rate of return (%) and Net Present Value of Options B-D, relative to Option A

|                          | <u>Option B</u> | <u>Option C</u> | <u>Option D</u> | <u>Option E</u> |
|--------------------------|-----------------|-----------------|-----------------|-----------------|
| Rate of Return           | 13.5            | 11.5            | 49.5            | 70.0            |
| <u>Net Present Value</u> | <u>196,700</u>  | <u>65,500</u>   | <u>690,800</u>  | <u>532,200</u>  |

16. The figures indicate that a development on the lines of Option D is likely to be the most efficient alternative, achieving a substantial reduction in recurrent expenditure with a relatively small capital investment. The re-use of an existing school would eliminate the need to build new central facilities and the cost of the marginal classrooms is low.

17. Option E has an even higher rate of return, but on a smaller investments, and the net benefit (present discounted value of the reduction in current expenditure, less capital cost) is slightly lower.

18. In those cases where the existing schools occupy sites where expansion is impossible, Option B is likely to be preferred to Option D. If a new school has to be built at all, it is worthwhile incurring the extra cost of making it large enough to accommodate all the children.

19. Since many of the project schools are housed in old church halls or similar buildings in cramped, centre village sites, Option B may well be the typical outcome. It may be preferred even where Option D is a feasible alternative if the quality of the education is likely to be significantly enhanced by the provision of new buildings. The amortized capital cost of a student place in primary education represents only a quarter of the total cost per student year and hence the effect on the quality of schooling may be an overriding factor.

BARBADOSSECOND EDUCATION AND TRAINING PROJECTTechnical Assistance and Training Requirements  
For Primary and Secondary Education and  
and Institutional Development of the MOE

| <u>General Area</u>                                       | <u>Purpose</u>   | <u>Overseas<br/>Training<br/>(Man-Months)</u> | <u>Consultant<br/>Services<br/>(Man-Months)</u> | <u>Local Training</u>   |
|---|--|---|---|---|
| Education Planning<br>and Management                      | Improve the budgeting and accounting process of MOE, introducing a long-term budgeting approach, data gathering techniques and diagnostic methodologies. | 5   | 5   |   |
|   | Improve school supervision practices (for Head Masters).   | 3   | 3   | 105 head teachers - (15 days)<br>20 secondary school head masters - (15 days) |
|   | Review testing and measurement practices used by MOE.  | 12  | 12  | 32 education officers and 40 school guidance counsellors - (10 days)          |
|   | Improve skills for managing changes in education (for education officers).   | 12  | 6   | 32 educator officers (5 days)   |
| Supply Management   | Improve textbook procurement and distribution systems.   |   | 6   | 3 supply management staff   |
| Teaching Practices in<br>Primary and Secondary<br>Schools | Improve curriculum implementation strategies.  | 12  | 6   | 32 education officers - (5 days)<br>100 school teachers - (10 days)           |
|   | Improve teaching of subject areas (e.g. foreign language, business education, language arts, mathematics and science).                                   | 10  |   | 200 teachers - (5 days)   |
|   | Improve teaching of reading, writing, numeracy and language arts.  | 10  | 12  | 1500 teachers -<br>(3 workshops - 3 days each)                                |
| Audio Visual Aids   | Improve production of printed materials in MOE.  | 3   | 3   |   |
|   | Improve educational technology programs - television and school library services.  | 3   | 3   | 500 teachers - to be trained in the use of libraries - (2 days)               |
|   | Reorganize MOE Library   | -   | 6   |   |
| <b>TOTALS</b>   |  | 70  | 62  | 10,445 days   |

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

Technical Assistance and Training Requirements  
for Vocational and Technical Training

|  | Total<br>Staff Months | Tentative Schedule by CY |      |      |           |
|--|-----------------------|--------------------------|------|------|-----------|
|  |                       | 1986                     | 1987 | 1988 | 1989 1990 |

in staff months

Internships/Study Tours Abroad

Community College:

|                         |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|
| Instructors (20)        | 91.0 | 11.0 | 20.0 | 20.0 | 20.0 | 20.0 |
| Maintenance Technicians | 2.0  | 2.0  |      |      |      |      |

Polytechnic:

|                 |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|
| Instructors (7) | 66.0 | 15.0 | 15.0 | 14.0 | 12.0 | 10.0 |
| Registrar (1)   | 1.0  | 1.0  |      |      |      |      |

National Training Board:

|                     |      |     |     |     |  |  |
|---------------------|------|-----|-----|-----|--|--|
| Instructors         | 6.0  | 2.0 | 2.0 | 2.0 |  |  |
| Instructor Trainers | 10.0 | 3.0 | 4.0 | 3.0 |  |  |
| Administrators      | 10.0 | 3.0 | 4.0 | 3.0 |  |  |

Manpower Research Unit:

|                         |            |            |      |      |      |      |
|-------------------------|------------|------------|------|------|------|------|
| Job Analysis Internship | <u>2.0</u> | <u>2.0</u> |      |      |      |      |
| TOTAL                   | 188.0      | 39.0       | 45.0 | 42.0 | 32.0 | 30.0 |

Specialist Assistance

|                            |     |     |     |     |  |  |
|----------------------------|-----|-----|-----|-----|--|--|
| National Training Board    |     |     |     |     |  |  |
| Curriculum and Testing     | 6.0 | 3.0 | 3.0 |     |  |  |
| Equipment and Installation | 3.0 |     |     | 3.0 |  |  |

Manpower Research Unit:

|                   |     |     |     |  |  |  |
|-------------------|-----|-----|-----|--|--|--|
| Manpower Planning | 3.0 | 1.0 | 2.0 |  |  |  |
| Job Analysis      | 9.0 | 3.0 | 6.0 |  |  |  |

Training Administration, Needs  
Assessment and Planning of  
Training Programs/Development  
of Training Materials

|       |             |             |             |            |            |            |
|-------|-------------|-------------|-------------|------------|------------|------------|
| TOTAL | <u>39.0</u> | <u>10.0</u> | <u>20.0</u> | <u>9.0</u> | <u>0.0</u> | <u>0.0</u> |
|-------|-------------|-------------|-------------|------------|------------|------------|

\* Community College  
Computer Science                      6.0 These have been acquired without  
Industrial Electronics                6.0 cost from local industry.

SECOND EDUCATION AND TRAINING PROJECT

Schedule of Accomodations: Secondary Schools

| Type of Accomodation Unit   | No of Places | No of Units | Net Area (sq. m.) |           | Circulation & Walling |        | Construction Cost (BDS\$000) |           | Furniture and Equipment Costs | TOTAL PROJECT Cost |
|-----------------------------|--------------|-------------|-------------------|-----------|-----------------------|--------|------------------------------|-----------|-------------------------------|--------------------|
|                             |              |             | Per Unit          | Sub Total | %                     | sq. m. | per sq. m.                   | Sub Total |                               |                    |
| <u>QUEENS COLLEGE:</u>      |              |             |                   |           |                       |        |                              |           |                               |                    |
| Regular Classrooms          | 30           | 10          | 54                | 540       | 35%                   | 189    | 0.88                         | 641.52    |                               |                    |
| Special Classrooms          | 30           | 2           | 75                | 150       | 35%                   | 53     | 0.88                         | 178.20    |                               |                    |
| Science Lab inc Prep. Areas | 30           | 4           | 90                | 360       | 35%                   | 126    | 1.00                         | 486.00    |                               |                    |
| Art and Crafts inc Storage  | 30           | 2           | 90                | 180       | 35%                   | 63     | 0.88                         | 213.84    |                               |                    |
| Library                     |              | 1           | 180               | 180       | 35%                   | 63     | 0.88                         | 213.84    |                               |                    |
| Technical Drawing           | 30           | 1           | 75                | 75        | 35%                   | 26     | 0.88                         | 89.10     |                               |                    |
| Admin/Teach Rooms/Lounge    |              | 1           | 250               | 250       | 35%                   | 88     | 0.88                         | 297.00    |                               |                    |
| Maintenace/Storage/Utility  |              | 1           | 25                | 25        | 35%                   | 9      | 0.88                         | 29.70     |                               |                    |
| Toilets/Lockers             |              | 1           | 200               | 200       | 35%                   | 70     | 1.20                         | 324.00    |                               |                    |
| Subtotal                    |              |             |                   | 1960      |                       | 686    |                              | 2473.20   |                               |                    |
| Add 15% Site Develop        |              |             |                   |           |                       |        |                              | 370.98    |                               |                    |
| Add Repairs/Alterations     |              |             |                   | 1600      |                       |        | 0.35                         | 560.00    |                               |                    |
| TOTAL Civil Works           |              |             |                   |           |                       |        |                              | 3404.18   |                               |                    |
| Furniture Cost              |              |             |                   |           |                       |        |                              |           | 185.60                        |                    |
| Equipment Cost              |              |             |                   |           |                       |        |                              |           | 292.00                        |                    |
| TOTAL PROJECT COST          |              |             |                   |           |                       |        |                              | 3404.18   | 477.60                        | 3881.78            |
| <u>SPRINGER MEMORIAL</u>    |              |             |                   |           |                       |        |                              |           |                               |                    |
| Library                     |              | 1           | 180               | 180       | 35%                   | 63     | 0.88                         | 213.84    |                               |                    |
| Technical Drawing           | 30           | 1           | 75                | 75        | 35%                   | 26     | 0.88                         | 89.10     |                               |                    |
| Admin/Teachers' Rooms       |              | 1           | 250               | 250       | 35%                   | 88     | 0.88                         | 297.00    |                               |                    |
| Science Lab inc Prep Areas  | 30           | 2           | 90                | 180       | 35%                   | 63     | 1.00                         | 243.00    |                               |                    |
| Sick Bay                    |              | 2           | 10                | 20        | 35%                   | 7      | 0.88                         | 23.76     |                               |                    |
| Toilet/Lockers              |              | 1           | 100               | 100       | 35%                   | 35     | 1.20                         | 162.00    |                               |                    |
| Covered Multipurpose Area   |              | 1           | 300               | 300       | 0%                    | 0      | 0.75                         | 225.00    |                               |                    |
| Subtotal                    |              |             |                   | 1105      |                       | 282    |                              | 1253.70   |                               |                    |
| Add 10% Site Development    |              |             |                   |           |                       |        |                              | 125.37    |                               |                    |
| Add Repairs/Alterations     |              |             |                   | 700       |                       |        | 0.35                         | 245.00    |                               |                    |
| TOTAL Civil Works           |              |             |                   |           |                       |        |                              | 1624.07   |                               |                    |
| Furniture Cost              |              |             |                   |           |                       |        |                              |           | 133.50                        |                    |
| Equipment Cost              |              |             |                   |           |                       |        |                              |           | 200.00                        |                    |
| TOTAL PROJECT COST          |              |             |                   |           |                       |        |                              | 1624.07   | 333.50                        | 1957.57            |

SECOND EDUCATION AND TRAINING PROJECT

Schedule of Accomodations: Secondary SchoolsCATION AND TRAINING PROJECT

| Type of Accomodation Unit   | No of Places | No of Units | Net Area (sq. m.) |           | Circulation & Walling |        | Construction Cost (BD\$000) |           | Furniture and Equipment Costs | TOTAL PROJECT Cost |
|-----------------------------|--------------|-------------|-------------------|-----------|-----------------------|--------|-----------------------------|-----------|-------------------------------|--------------------|
|                             |              |             | Per Unit          | Sub Total | %                     | sq. m. | per sq. m.                  | Sub Total |                               |                    |
| <u>WOTTON SECONDARY</u>     |              |             |                   |           |                       |        |                             |           |                               |                    |
| Regular Classrooms          | 30           | 24          | 52                | 1248      | 35%                   | 437    | 0.88                        | 1482.62   |                               |                    |
| Special Classrooms          | 30           | 3           | 78                | 234       | 35%                   | 82     | 0.88                        | 277.99    |                               |                    |
| Science Labs w/ Prep area   | 30           | 4           | 90                | 360       | 35%                   | 126    | 1.00                        | 486.00    |                               |                    |
| Music Room                  | 20           | 1           | 80                | 80        | 35%                   | 28     | 0.88                        | 95.04     |                               |                    |
| Arts and Crafts             | 20           | 2           | 78                | 156       | 35%                   | 55     | 0.88                        | 185.33    |                               |                    |
| Photo Lab                   |              | 1           | 30                | 30        | 35%                   | 11     | 0.88                        | 35.64     |                               |                    |
| Library                     |              | 1           | 150               | 150       | 35%                   | 53     | 0.88                        | 178.20    |                               |                    |
| Technical Drawing           | 30           | 1           | 78                | 78        | 35%                   | 27     | 0.88                        | 92.66     |                               |                    |
| Commerce/Typing Room        | 30           | 2           | 78                | 156       | 35%                   | 55     | 0.88                        | 185.33    |                               |                    |
| Cooking                     | 20           | 2           | 78                | 156       | 35%                   | 55     | 0.88                        | 185.33    |                               |                    |
| Sewing/Needlecraft          | 20           | 1           | 60                | 60        | 35%                   | 21     | 0.88                        | 71.28     |                               |                    |
| Admin/Teacher/Rooms/Lounge  |              | 1           | 300               | 300       | 35%                   | 105    | 0.88                        | 356.40    |                               |                    |
| Maintenance/Storage/Utility |              | 1           | 120               | 120       | 35%                   | 42     | 0.88                        | 142.56    |                               |                    |
| Canteen                     |              | 1           | 100               | 100       | 35%                   | 35     | 0.88                        | 118.80    |                               |                    |
| Toilets/Lockers             |              | 1           | 240               | 240       | 35%                   | 84     | 1.20                        | 388.80    |                               |                    |
| Sick Bay                    |              | 2           | 10                | 20        | 35%                   | 7      | 0.88                        | 23.76     |                               |                    |
| Covered Multipurpose Area   |              | 1           | 300               | 300       | 0%                    | 0      | 0.50                        | 150.00    |                               |                    |
| Agriculture Shed            |              | 1           | 60                | 60        | 0%                    | 0      | 0.88                        | 48.00     |                               |                    |
| Wood/Metal Workshops w/stor | 20           | 2           | 120               | 240       | 25%                   | 60     | 0.75                        | 225.00    |                               |                    |
| Subtotal                    |              |             |                   | 3468      |                       | 1214   |                             | 4728.74   |                               |                    |
| Add 15% Site Development    |              |             |                   |           |                       |        |                             | 709.31    |                               |                    |
| TOTAL Civil Works           |              |             |                   |           |                       |        |                             | 5438.06   |                               |                    |
| Furniture                   |              |             |                   |           |                       |        |                             |           | 300.00                        |                    |
| Equipment Cost              |              |             |                   |           |                       |        |                             |           | 600.00                        |                    |
| TOTAL PROJECT COST          |              |             |                   |           |                       |        |                             | 5438.06   | 900.00                        | 6338.06            |
| <u>HARRISON COLLEGE</u>     |              |             |                   |           |                       |        |                             |           |                               |                    |
| Civil Works                 |              |             |                   |           |                       |        |                             |           | none                          |                    |
| Furniture Cost              |              |             |                   |           |                       |        |                             |           | 115.40                        |                    |
| Equipment Coste             |              |             |                   |           |                       |        |                             |           | 160.00                        |                    |
| TOTAL PROJECT COST          |              |             |                   |           |                       |        |                             |           | 275.40                        | 275.40             |

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

SAMUEL J. PRESCOD POLYTECHNIC: Proposed Upgrading and Expansion  
of Training and Strengthening of  
Administrative Procedures

I. Proposed Program Development

Objectives of Component

1. The proposed project component would directly assist the Government in implementing its new policies, as stated in its 1983-88 Development Plan, of ensuring that the education and training system can fully support the overall economic policy goal of diversification of the economy. It contributes directly to the attainment of four of the five stated objectives of the plan.

Description of Component

2. The proposed project would provide the following inputs to facilitate the attainment of the stated objectives.

3. Improving Administrative Procedures. Improvements in practices and procedures in student enrollment and records keeping, financial management and accounting, inventory control, personnel management and institution general management would be assisted through the provision of:

|   |            |
|---|------------|
| (a) a small computer, software, peripheral and related related office equipment | US\$12,000 |
| (b) staff training (mainly locally)   | 3,000      |
| Sub-Total   | US\$15,000 |

4. Improvements in instruction, in internal efficiency and external effectiveness of training programs and moderate increases in the outputs of trained manpower would be assisted through the provision of:

|  |            |                    |
|--|------------|--------------------|
| (a) Supplementary equipment so as to make more efficient use of existing facilities: |            |                    |
| - Communications electronics   | US\$45,000 |                    |
| - Electrical installations   | 36,000     |                    |
| - Food preparation   | 25,000     |                    |
| - Printing   | 50,000     |                    |
| - Welding  | 5,000      |                    |
| - Mechanical programs  | 84,000     |                    |
| Sub-Total  |            | US\$245,000        |
| (b) Staff training-local and abroad  |            | 160,000            |
| (c) Specialist assistance (curriculum)   |            | 100,000            |
| Total Cost   |            | <u>US\$520,000</u> |

\*\*\*\*\*

5. Quantitative improvements resulting from the above investments would be:

(a) Increases in enrollments of full-time students:

|                              |    |                     |
|------------------------------|----|---------------------|
| - Communications electronics | 36 |                     |
| - Printing                   | 15 | 56FTE <sup>1/</sup> |
| - Mechanical                 | 5  |                     |

(b) Increases in apprentices and secondary school trainees on one and two day-release training programs:

|                              |     |               |
|------------------------------|-----|---------------|
| - Communications electronics | 36  |               |
| - Electrical installations   | 54  |               |
| - Welding                    | 54  |               |
| - Carpentry                  | 144 | 702 (154 FTE) |
| - Garment making             | 144 |               |
| - Mechanical                 | 144 |               |
| - Food preparation           | 144 |               |

(c) Increases in evening class enrollments:

|                            |    |                    |
|----------------------------|----|--------------------|
| - Electrical installations | 36 |                    |
| - Printing                 | 30 | <u>66</u> (11 FTE) |

(d) Total enrollments: Total Increased Capacity 824 (221 FTE)

|                                  |            |
|----------------------------------|------------|
| - Actual in 1984-85 schoolyear:  |            |
| . Full time day students         | 576        |
| . Apprenticeship trainees        | 145        |
| . Secondary cooperative students | 347        |
| . Evening cooperative students   | <u>473</u> |

Total Enrollment 1,541 (16% girls)

- Projected as a result of supplementary equipment:

|                                  |            | <u>% Increase</u> |
|----------------------------------|------------|-------------------|
| . Full time day students         | 632        | 40                |
| . Apprenticeship trainees        | 145        | 0                 |
| . Secondary cooperative students | 702        | 100               |
| . Evening cooperative students   | <u>539</u> | 14                |

Total Enrollment 2,018<sup>2/</sup> (30% girls)

<sup>1/</sup> PTE = Full time Equivalent

<sup>2/</sup> This increase could be attained with only a total additional investment of about US\$310 per additional trainee (or US\$1,100 per full time equivalent trainee), all of which is for supplementary equipment. This contrasts very sharply with the approximately US\$8,500 per full time trainee it would cost to build furnish and equip separate training programs in the above trades for this number of trainees.

6. Qualitative improvements resulting from this component would mainly be:
- (a) increased efficiency, in the utilization of existing capital investments;
  - (b) enhancing the quality of instruction;
  - (c) improving student motivation and retention as a result of improved equipment and course syllabi;
  - (d) improving articulation and coordination of vocational and technical training effort among the secondary schools, the Polytechnic and the Community College (all under the Ministry of Education) on the one hand, and between them and the National Training Board, on the other,; and
  - (e) improving the relevance of training programs to the rapidly evolving needs of industry through, in addition to the above, strengthening and formalizing its relations with industry and follow-up of on-the-job performance of graduates.

Marginal Recurrent Costs of Project

7. The additional recurrent costs, when the project component is fully operational with the additional equipment in the 1987-88 school year would be about B\$163,000 (US\$181,500) in constant 1985 prices (July 1, 1985). This represents an increase of about 5% over the Polytechnic's recurrent budget allocation of B\$3.48 million for the 1985-86 school year, which, in itself represented an increase over 1984-85 of 25% (Annex 4).

Instructor Recruitment and Training

8. The Polytechnic has consistently had considerable problems in the recruitment and retention of good technically qualified instructional staff for the full-time positions. However, through vigorous recruiting, partially abroad, they are able to keep staffed with fairly well qualified instructors. Recruitment is complicated by the fact that the top of the instructor pay scale for the Polytechnic is about 10% less than that for vocational teachers in the secondary schools where the actual technical skills requirements are much lower. This was called to the attention of the Permanent Secretary of MOE who promised to look into an equitable solution.

9. In-service pedagogical training is provided under the project for upgrading instructional skills. The technical skills of key instructional staff would be upgraded through study tours abroad (72 staff months).

Institutional Management

10. Short-term study tours to similar institutions in more advanced countries would be provided the principal and deputy principal of the Polytechnic to help them strengthen their planning and management capabilities. The second-level managers -- registrar, accountant and guidance counsellor -- would have their capabilities upgraded through a combination of training locally and abroad (total 4 staff mo/hrs); for the registrar in improving and computerizing student enrollment and performance records, through local training in improving and computerizing the management of financial records for the accountant; and a short internship in a similar institution in an advanced country for the guidance counselor to observe the organization and operation of successful guidance and counselling programs.

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

BARBADOS COMMUNITY COLLEGE: Proposed Upgrading and Expansion of Training Programs and Strengthening of Administrative Procedures

I. Proposed Institutional Development

Objectives and Component

1. The proposed project component would directly assist the government in implementing its new policies, as stated in its 1983-88 National Development Plan, of ensuring that the education and training system can fully support the overall economic policy goal of diversification of the economy. The component contributes directly to the attainment of four of the five stated objectives of the plan.

Description of Component

2. The proposed project would provide the following inputs to facilitate the attainment of the above objectives.

3. Improvements in general administrative efficiency and in the practices and procedures of financial management and accounting, student enrollment and records, inventory control and personnel management would be facilitated through: (a) expanded administration, student enrollment/records (registrar) and financial accounting spaces; (b) provision of modern accounting, student records and personnel management equipment, procedures and related training; and (c) consolidation of instruction (except of hotel training) all on the central campus where it can be more effectively supervised and administered which would permit sharing of facilities and an increase in their rise-factor.

4. Improvements in instruction, internal efficiency and external effectiveness of training programs, and expansions in the outputs of technicians in response to the needs of the growth sectors of the economy would be facilitated by the provision of: (a) "purpose designed" instructional laboratories and shops (to replace the seriously inadequate spaces now widely scattered over the city) for training programs in applied arts and crafts, allied health occupations, and the new training programs in industrial electronics and computer science; (b) appropriate training equipment, furniture and training materials for the above programs, in the other industrial technologies and in the business and commerce programs; and (d) fellowships training to improve course syllabi and methodology, program planning and instructional capabilities of key teachers:

5. Summary of Inputs and Estimated Base Costs (US\$ million)

Construction, furniture, equipment and related technical assistance:

|                        |                  |
|------------------------|------------------|
| Construction           | US\$ 3.06        |
| Professional Fees      | 0.36             |
| Furniture              | 0.25             |
| Equipment              | 1.25             |
| Fellowships            | <u>0.18</u>      |
| <b>Total Base Cost</b> | <b>US\$ 5.10</b> |

Summary of Equipment and Furniture Costs  
(US\$ millions CIF)

| <u>Division</u>                             |            | <u>Estimated Base Costs</u> |
|---|------------|-----------------------------|
| Computer Science                            |            | US\$ 0.26                   |
| Technology: (Industrial)                    |            |                             |
| Mechanical and others                       | US\$ 0.12  | 0.28                        |
| Electronic                                  | 0.16       |                             |
| Applied Arts                                |            | 0.34                        |
| Allied Health Sciences                      |            | 0.45                        |
| Administration                              |            | <u>0.15</u>                 |
| <b>Total Base Costs (March 1986 prices)</b> |            | <b>US\$ 1.48</b>            |
|   | <b>Say</b> | <b>US\$ 1.50</b>            |

6. Quantitative Improvements of this component would be:

(a) Increases in the enrollments and additional annual outputs:  
(Full-time and Part-time)

| <u>Division</u>         | <u>Full-time</u> | <u>Part-time</u> | <u>Total</u> | <u>Additional Annual Outputs</u> |
|-------------------------|------------------|------------------|--------------|----------------------------------|
| Applied Arts            | 130              | 70               | 200          | 65                               |
| Industrial Technology   | 100              | 174              | 274          | 75                               |
| Allied Health Sciences  | 90 <u>a/</u>     | 78               | 168          | 15                               |
| Commerce/Tourism        | 50               |                  | 50           | 20                               |
| Computer Science        | <u>30</u>        | <u>100</u>       | <u>130</u>   | <u>30</u>                        |
| <b>Estimated Totals</b> | <b>400</b>       | <b>422</b>       | <b>822</b>   | <b>205</b>                       |

a/ These are mostly resulting from the nursing program which is being transferred from the Ministry of Health to the Community College and are not real increases in courses training.

7. Qualitative improvements resulting from this component would mainly be:

- (a) Increasing efficiency and effectiveness in the administration of the instructional process and in financial management (para. 3);
- (b) Enhancing the quality of instruction, student motivation and retention as a result of the project inputs;
- (c) Upgrading the technological and pedagogical expertise of instructors and consequently the quality of instruction; and
- (d) Improving the relevance of training programs to the rapidly evolving needs of industry, strengthening and formalizing relationships with industry and follow-up of on-the-job performance of its graduates.

#### Instructor Recruitment and Training

8. Instructor recruitment and retention has not been a problem at the Community College except for the industrial technology division. Consequently extensive use has been made of part-time instructors during the 4-9 p.m. evening hours. This has its strengths in that instructors are more fully up-to-date on industry requirements; however, the utilization of laboratories and shops during the morning hours is relatively low. As the supply of industrial technicians becomes more in line with demand, the recruitment of full-time instructors will be much easier.

#### Marginal Recurrent Costs of Project

9. The additional recurrent costs, when the component is fully operational in 1989-90 in the new and fully equipped facilities would be about B\$1.36 million (US\$0.64 million) in constant 1985 prices (July 1, 1985). This represents about 12% of the projected 1989-90 budget: In view of the governments' high priority for technician training, these additional costs are not expected to present any problem. Details are shown in Annex 4.

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

NATIONAL TRAINING BOARD: Proposed Upgrading of Skills Training Program

I. Proposed Program Development

Objectives of Component

1. The proposed skills training component would directly assist the government, as stated in its National Development Plan of 1983-88, in implementing the new policies of ensuring that the education and training system can fully support the overall economic policy goal of diversification of the economy. The component contributes directly to the attainment of each of the five stated objectives of the plan.

Training Centers Characteristics

3. There would be 6 trades to be taught in each of the centers selected from among:

Furniture making  
Carpentry  
Masonry, plastering and tile setting  
Steel forming and placement for concrete construction  
Plumbing and pipefitting  
Electrical installations  
Auto mechanics tune-up and general repair  
Furniture and automotive upholstery  
Electric and oxy-acetylene welding  
Garment making

Note: Based upon industrial demand, some trades would be rotated over time between two or more centers.

4. Number of trainee places per trade in each center would be 12, with a total of 72 trainee places per center.

5. Centers would be operational for seven hours in the day shift and three hours in an evening shift for five days per week and about 10 months per year.

6. Training programs would be of three types - apprenticeship training on a one or two day per week "day release" basis in cooperation with local industry apprenticeship programs; the regular skills training programs for providing entry-level skills to unemployed youth and adults of ages 16-30; and those for upgrading the skills of employed industrial workers.

- (a) Apprenticeship training activities in the NTB Centers would supplement the on-going programs currently arranged with the Polytechnic. However, they would permit the "tailoring" of training in accordance with the special needs of individual companies and their annual production schedule. Such "tailored" training would be based upon the ILO "modules of employable skills" and/or on "special" training activities jointly planned with the sponsoring company. This type of apprenticeship training would, for many trainees, be a vast improvement over the necessarily rather rigidly structured scheme currently arranged with the Polytechnic due to its having to place the apprenticeship trainees in with the full-time regular students.
- (b) Regular skills training programs are based upon the ILO modules of employable skills materials and procedures and, depending upon the number of hours per week of instruction, the additional outputs produced annually would be:

from modules of 3 months - 1,000; or  
from modules of 6 months - 500; or  
from modules of 9 months - 290 Trainees

Note: Evening class enrollments could about double these numbers.

An output of this magnitude contrasts sharply with the current annual output of about 500, mostly young unemployed adults from the three month programs in the 8 existing makeshift, highly unsatisfactory and poorly equipped training locales. These makeshift "centers" would be shut down once the new centers are operational.

- (c) On the job training would be assisted by supplementing the on-the-job training activities with short and intensive part-time center-based training activities for such special modules of training (theory or practice) which the employer cannot economically conduct.

7. Physical plant requirements would be as follows:

- (a) Locations of the three proposed new centers and the one existing facility with adequate buildings and services which has been given to NTB, are based upon the criteria of
- road and transportation systems;
  - availability of adequate numbers of prospective trainees; and
  - demand for trained workers.

Consequently, it is proposed to locate one in Bridgetown to serve the more densely populated West Central region of the country; a second one in the rapidly developing South Coast and South East parishes; a third one in the Central Parish of St. George; and provision of equipment only for the existing center located in the Northern Parish of St. Lucy. Each of these centers would be well served by existing bus lines and would be within about 30 minutes of their total service area. Sites would be acquired by the time of Board Presentation.

- (b) Civil Works requirements for each of the new centers would be as follows:

| <u>Type of Space</u>                       | <u>No. of Spaces</u> | <u>Size of Space (m<sup>2</sup>)</u> | <u>Subtotal Space (m<sup>2</sup>)</u> |
|--|----------------------|--------------------------------------|---------------------------------------|
| Workshops                                  | 1                    | 196 m <sup>2</sup>                   | 196 m <sup>2</sup>                    |
| Workshops                                  | 1                    | 160                                  | 160                                   |
| Workshops                                  | 4                    | 125                                  | 500                                   |
| Classrooms                                 | 2                    | 35                                   | 70                                    |
| Instructors Preparation Room               | 1                    | 50                                   | 50                                    |
| Administrative Office                      | 1                    | 20                                   | 20                                    |
| Clerical Office                            | 1                    | 15                                   | 15                                    |
| Canteen/Assembly Hall                      | 1                    | 120                                  | 120                                   |
| Rest Room - Men                            | 1                    | 12                                   | 12                                    |
| Rest Room - Ladies                         | 1                    | 45                                   | 45                                    |
| Shop Storage Rooms:<br>(adjacent to shops) | 1                    | 45                                   | 45                                    |
|  | 5                    | 24                                   | 120                                   |
| Interior Circulation and Walls (15%)       |                      |                                      | <u>203</u>                            |
| Total Space Requirement of Each Center     |                      |                                      | 1,556 m <sup>2</sup>                  |
| Total Space Requirement for Three Centers  |                      |                                      | 4,668 m <sup>2</sup>                  |
| Estimated Total Base Costs                 |                      |                                      | US\$ 2.16 million                     |

- (c) Furniture and Equipment requirements <sup>1/</sup> would be as follows:  
(CIF costs in US\$'000) (12 trainees/shop)

| <u>Program of Training</u>                            | <u>No. of Programs</u>  | <u>Cost per Program</u> | <u>Total Cost</u>   |
|---|-------------------------|-------------------------|---------------------|
| Furniture making                                      | 3                       | 30,000                  | 90,000              |
| Masonry, plastering and tile setting                  | 2                       | 12,000                  | 24,000              |
| Plumbing and pipe fitting                             | 3                       | 12,000                  | 36,000              |
| Electrical installations                              | 2                       | 12,000                  | 24,000              |
| Auto mechanics tune-up                                | 3                       | 24,000                  | 72,000              |
| Furniture and automotive upholstery                   | 1                       | 10,000                  | 10,000              |
| Electric and oxy-acetyline welding                    | 2                       | 24,000                  | 48,000              |
| Garment making  | 3                       | 20,000                  | 60,000              |
| Steel forming and placement                           | 1                       | 8,000                   | 8,000               |
| General carpentry                                     | 2                       | 13,000                  | 26,000              |
| Auto body and painting                                | 1                       | 24,000                  | 24,000              |
| Arts and Crafts                                       | <u>1</u>                | 18,000                  | 18,000              |
|   | 24                      |                         |                     |
| Classroom, office and canteen furniture and equipment | 4 centers <sup>1/</sup> | 30,000                  | <u>120,000</u>      |
|   |                         | <u>Base Costs (CIF)</u> | <u>US\$ 560,000</u> |

<sup>1/</sup> For the 3 new centers and the existing physical facility recently given to NTB in St. Lucy Parish.

Marginal Recurrent Costs of Component

8. The additional recurrent costs of the project would be significant as they would be replacing existing small and inefficient training locales offering inadequate training in only one or two skills in each. Based upon mid-1985 costs, the estimated additional recurrent costs of the component, when the four centers are operational in 1992, would be about B\$ 1.26 million (US\$0.63 million) representing about 24% of their projected total budget for that year and about 11% over the 1985-86 budget request. (See Annex 4 for details).

Specialist Assistance and Staff Training Abroad

9. Because of the amount of specialist assistance which has been received from multilateral and bilateral sources over the last 2-3 years, the NTB's specialist assistance needs under the project would only be about nine more months. Also, because of the extensive staff training activities (locally and abroad) during the last two years, only 24 man months of short-term internships abroad would be required under the project. The total costs of it is estimated at US\$65,000 and staff internships abroad at US\$125,000 (Annex 8).

II. Significant Characteristics of NTB Training System

Instructor Recruitment and Training

1. NTB is not expected to have difficulty in recruiting the 10 additional full-time instructors and the 18 part-time instructors for the new centers, as the salary scale is quite competitive with similarly skilled jobs in industry. Also the working conditions are much more attractive. Furthermore, part-time instructors would be increasingly used, especially in the night classes, and these should be attractive for many employed and well-qualified skilled workers and supervisors.

2. Instructors must have a minimum of five years of industrial experience after having attained full certification in their skill specialization.

3. Short pre-service (120 hours) and in-service training to both full-time and part-time staff is provided by two full-time instructor trainers who also provide technical assistance to in-plant apprenticeship supervisors. All teaching staff have participated, during the last two years, in formal training activities conducted by both the NTB instructors training staff and specialists from ILO, OAS, USAID and CINTERFOR. Four instructors also participated in a special 8 week training course abroad.

### Curriculum Development

4. Most instruction is based upon the ILO Modules of employable skills materials, with modifications to the Barbadian situation made where necessary. In support of this, a 40 hour workshop on curriculum development was conducted by ILO specialists in October 1984. Because of the importance attached to this system of training by the NTB, all (18) instructional, curriculum development and supervisory staff (including the director and assistant director of NTB) attended the full course. Additionally, one of the curriculum development staff attended a two week (80 hours) course abroad on occupational analysis with the objective of improving staff capabilities in maintaining the relevance of course syllabi.

5. The nine NTB "trade advisory committees" play a very important role in keeping the training courses relevant to national development needs. These committees range in size from six to 10 members, are appointed by the NTB Board of Directors to staggered terms and have representatives from industry management, employees, and from the Ministries of Education, Labour, and Transport and Public Works.

6. A special study to determine the relevance of existing training and to identify additional training needs was carried out by the Research Unit and its findings are being incorporated into the 1985 training activities.

### Management

7. The management of the NTB is well organized and in spite of very crowded physical facilities is functioning effectively. It has received considerable assistance in management from both multilateral and bi-lateral agencies over its five year life. The overcrowding situation will be largely relieved when the expansion now underway is completed in late 1985.

8. The administration is being strengthened through increases in key personnel and the upgrading of existing personnel as a result of the findings of specialist assistance received and local and foreign training activities. One of its major strengths is its active board of directors consisting of 13 of the top managers from industry, government and workers union, several of whom are also members of the "trade advisory committees".

BARBADOS

SECOND EDUCATION PROJECT

NATIONAL TRAINING BOARD SKILLS TRAINING CENTERS: Increases in Vocational and Technical Training Enrollments and Outputs by Program when Centers are Fully Operational in 1992.

| <u>Programs of Training</u> | <u>Skilled Workers</u>      |                   | <u>Technicians</u>          |                   |
|-----------------------------|-----------------------------|-------------------|-----------------------------|-------------------|
|                             | <u>Enrollments</u><br>(FTE) | <u>Outputs a/</u> | <u>Enrollments</u><br>(FTE) | <u>Outputs a/</u> |
| Industrial Trades           | 1,180                       | 840               | 190                         | 75                |
| Commercial-Tourism          | 140                         | 65                | 50                          | 20                |
| Health Occupations          | 36                          | 36                | 40                          | 15                |
| Arts and Crafts             | 74                          | 74                | 165                         | 65                |
| Computer Science            | --                          | --                | 80                          | 30                |
| Totals                      | 1,430                       | 1,015 <u>b/</u>   | 515                         | 205 <u>c/</u>     |

a/ Assuming a 10% drop-out rate for semi-skilled and skilled worker programs and 20% for technician level programs.

b/ About 28% women.

c/ About 60% women.

FTE = Full Time Equivalent

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

Strengthening of Manpower Research and Statistics Unit

1. If the Manpower Research and Statistics Unit is to fulfill its assigned role in the 1983-88 National Development Plan, it must upgrade its capability to:

- (a) provide the public and private sectors with more up-to-date, detailed and accurate information on the present, as well as the future demand for and supply of labour; and
- (b) qualify and quantify the level of skills requirements and availability to serve as a rational basis for the planning of education and training programs.

At the present in Barbados there is an acute lack of information on available labour skills. There is also a lack of in-depth knowledge of what skills ought to be available in the immediate future. As a result, there is inadequate coordination between training and educational programmes and the required skills which the economy demands. This situation has resulted in the provision of excess skills in a number of areas on the one hand and a severe shortage of skills in strategic areas of need, on the other. A manpower survey is essential, in order to identify areas where there are actual shortages, provide accurate estimates of needs, to reveal areas of excess capacity, point out where the emphasis needs to be placed in regard to both formal and informal training, and serve as an instrument of policy for addressing the unemployment problem.

Background, Objectives and Functions of the  
Manpower Research and Statistics Unit

Background

1. The Manpower Research and Statistics Unit was established in 1982. Technical assistance was acquired from the Organization of American States in the form of an expert who advised in the setting up of the Unit. The OAS expert also provided advisory services to the Ministry of Labor in the areas of Manpower Planning and Labour Market Information (LMI).

Objectives

2. The main objectives of the Manpower Research Unit are:
- (a) To promote the development of human resources through effective and efficient manpower training;
  - (b) To establish a strong linkage between manpower planning and overall national economic planning.

- (c) To develop a well organized and efficient Labour Market Information System.
- (d) To provide the Barbados Government with an adequate amount of LMI so as to meet its planning and policy needs which the operation and management of modern-day Government demands.
- (e) To develop a programme of research in the economic and social aspects of Labor requirements.

### Functions

3. Among the major functions of the Unit are:
- (a) Undertaking manpower research through the carrying out of surveys and analyses; and
  - (b) Providing Labour Market Information with respect to employment, unemployment, job placement, wages, conditions of work and others;
4. The Unit works closely with other agencies in the LMI System including the Statistical Department and the Labour Department. The Unit will undertake research activities, which are not undertaken by the Statistical Department. There will be no overlapping of responsibilities between the Unit and the Statistical Department.

### Future Plans for the Manpower Research and Statistics Unit

5. The Unit will continue to develop and upgrade its research facilities while at the same time enhance the technical skills of its personnel, through access to specialized training, particularly in the area of computer technology. In this connection, the staff of the Unit, which at the present time comprise: a Senior Economist, an Economist and a Statistical Clerk will be increased in order to cope with projected LMI demands of user agencies. There will therefore be the recruitment of the following: a Job Analysis Specialist (Consultant for 9 months); a Senior Statistician; a Research Officer; an Administrative Officer; and a Stenographer/Secretary. It is envisaged that the above personnel will be assigned to the Unit by the end of 1986.

### Training Program

6. The Ministry of Labor recognizes that in order for there to be an effective and efficient utilization of computers in the execution of its overall functions, it is imperative that professional training of its personnel in the operation and management of computer services be urgently undertaken. Additionally, training in industrial job analysis will also be required of key full-time and part-time technical staff.

7. In this regard, the Ministry proposes to acquire training for its personnel with respect to the following:

- (a) A basic course in computer appreciation, computer programming and data processing;

- (b) An advanced course in the Management of Information Systems (computer related).
- (c) A course in Management Accounting (computer related).
- (d) The Job Analysis Specialist would provide on-the-job training to his counterparts on industrial job analysis which is necessary for the development of relevant training programs.

Estimated Base Costs

1. Technical Assistance

|  |             |
|--|-------------|
| Planning of Management Information System (3 months) | US\$ 25,000 |
| Job Analysis Specialist (9 months)                   | 75,000      |
| Short Internship in Similar Unit abroad (1 month)    | 5,000       |

2. Computer Equipment (hardware and software)

|   |        |
|---|--------|
| This entails purchase of a computer system that has the capacity to accommodate at least 60,000 records of personal data which will be updated on an annual or biennial basis | 15,000 |
|---|--------|

3. Local Training

|  |                     |
|--|---------------------|
| Computer internships in appropriate local industry | <u>5,000</u>        |
| Total Estimated Base Cost of Project               | <u>US\$ 125,000</u> |

BARBADOS

THE SECOND EDUCATION AND TRAINING PROJECT

TRAINING ADMINISTRATION: Proposed Improvement of Management  
Training in the Public Service

Objectives and Content:

1. The Government of Barbados is committed under the Barbados Development Plan 1983-1988, to the expansion and development of Public Service Training activities, both off-the-job and on-the-job, in order to ensure the improvement of organizational and individual competencies which are required to meet relevant manpower development needs within the context of the stated priorities of economic, social and cultural development goals.

2. Training Administration has the responsibility to provide local in-service training courses which reflect the shifts in public service training needs and qualification requirements of the work force and conduct studies that are relevant to the operational, procedural, organizational, policy and evaluation aspects of manpower development goals of the Government. Strengthening its professional competence in these areas will further develop its institutional capability and maximize its efficiency/effectiveness to meet the changing needs of human resources development within the Public Service.

3. The proposed project would assist in this regard by:

(a) providing technical assistance (total base cost: US\$180,000)

(i) to help identify/assess the priority areas of program development to meet the specific needs and the requirements of the Barbados Public Service. Emphasis would be given to the improvement of management and decision-making processes in the environment of inter-dependent activities which exist between Ministries, Departments and Statutory Organizations (total: 6 staff months);

(ii) to develop course manuals, case study materials, evaluation instruments and other relevant training materials for use in the various training programs conducted by Training Administration, and evaluate the effectiveness of existing ones. (Total: 12 staff months).

Training Administration has taken the initiative to develop a matrix of courses, designed within a structured continuum of Programme Offerings that have been made available to the Public Service Clientele and implemented during the period 1980-1983. Current training programs are designed to include lectures and practical exercises. These teaching methods are supplemented by group discussions, recommended reading assignments (textbooks and government documents), film

presentations, case study material and research project activities. The programs are structured in content and emphasis as considered appropriate to the particular level of course participation. In addition, a relevant blend of subject coverage is rationalized and validated within the context of each program. Accumulated inputs from Training Administration's professional staff and teaching resource personnel from management/specialized disciplines (both internal and external to the public service) have assisted in raising the quality and level of staff training and development activities. The proposed programs would not duplicate nor unnecessarily compete with those management programs that are being conducted by the University and/or any other local training organizations/institutions.

(b) Financing the acquisition of (total base cost: US\$50,000):

- (i) supplementary textbooks, journals, monographs, reading/research assignments and fact-finding project exercises on statutory instruments, legal documents and related information/reference material; and
- (ii) supplementary training equipment and relevant audio-visual hardware items and technological support systems to upgrade the teaching methods and enhance the learning processes.

#### Public Support

4. The current level of expansion and improvement of the various training programs has already resulted in increased participation by public service personnel. From a maximum of 240 participants in 1979, 1,362 participants attended the various training courses during 1980-1983. Upon completion of the project, it is estimated that the utilization will increase significantly. The level of public service nominations for the current programs provides strong evidence that Training Administration is uniquely poised to further expand the quality and quantity of its local in-service staff training and development programs.

5. The expected end-of-project results will greatly maximize Training Administration's capability to further expand its activities to meet the training needs of the public service target population of approximately 20,000 employees. The primary source of benefits is the expected level of performance improvement and the development of organizational and individual competencies that are required for operational, supervisory and management functions within the highly complex system of public service activities.

MEMORANDUM  
SECOND EDUCATION AND TRAINING PROJECT  
Summary Account by Project Component  
(BOB '000)

|  | Ministry of Education |                   |                               |                            | Ministry of Labor                  |   | Office of the Prime Minister          | Project Management      | TOTAL   | Physical Contingencies      |     |         |
|--|-----------------------|-------------------|-------------------------------|----------------------------|------------------------------------|---|---------------------------------------|-------------------------|---------|-----------------------------|-----|---------|
|  | Primary Schools       | Secondary Schools | Samuel J. Prescod Polytechnic | Barbados Community College | Institutional Strengthening of NCE | National Training Board Skills Training Centers | Manpower Research and Statistics Unit | Training Administration |         | Project Implementation Unit | %   | Amount  |
| <b>I. INVESTMENT COSTS <sup>a/</sup></b>   |                       |                   |                               |                            |                                    |   |                                       |                         |         |                             |     |         |
| A. Site Development                        | 1,696.0               | 1,205.7           | -                             | 523.3                      | 506.3                              | 525.1   | -                                     | -                       | -       | 4,456.4                     | 9.3 | 413.2   |
| B. Construction, Expansion and Remodelling | 11,335.0              | 9,260.6           | -                             | 5,996.8                    | 3,375.0                            | 3,800.9   | -                                     | -                       | -       | 33,368.3                    | 5.0 | 1,668.4 |
| C. Furniture                               | 676.0                 | 734.5             | 20.0                          | 500.0                      | 340.0                              | 240.0   | -                                     | -                       | -       | 2,510.5                     | 5.0 | 125.5   |
| D. Equipment and Educational Materials     | 595.0                 | 1,252.0           | 500.0                         | 2,500.0                    | 226.0                              | 1,120.0   | 30.0                                  | 100.0                   | 60.0    | 6,383.0                     | 5.0 | 319.2   |
| E. Local Training                          | -                     | -                 | -                             | -                          | 400.0                              | -   | -                                     | -                       | -       | 400.0                       | 5.0 | 20.0    |
| F. Technical assistance and Fellowships    | -                     | -                 | -                             | -                          | 1,790.7                            | 382.4   | 210.0                                 | 360.0                   | -       | 2,743.1                     | 5.0 | 137.2   |
| G. Professional Services                   | 1,430.7               | 1,184.9           | -                             | 727.6                      | 438.8                              | 478.6   | -                                     | -                       | -       | 4,260.6                     | 5.0 | 213.0   |
| H. Project Administration                  | -                     | -                 | -                             | -                          | -                                  | -   | -                                     | -                       | 3,822.7 | 3,822.7                     | 5.0 | 191.1   |
| I. Studies                                 | -                     | -                 | -                             | -                          | 240.0                              | -   | -                                     | -                       | -       | 240.0                       | 5.0 | 12.0    |
| Total Investment Costs                     | 15,732.7              | 13,637.7          | 520.0                         | 9,847.7                    | 7,316.8                            | 6,547.0   | 240.0                                 | 460.0                   | 3,882.7 | 58,184.6                    | 5.3 | 3,099.6 |
| Total Baseline Costs                       | 15,732.7              | 13,637.7          | 520.0                         | 9,847.7                    | 7,316.8                            | 6,547.0   | 240.0                                 | 460.0                   | 3,882.7 | 58,184.6                    | 5.3 | 3,099.6 |
| Physical Contingencies                     | 871.4                 | 735.9             | 26.0                          | 492.4                      | 391.2                              | 353.6   | 12.0                                  | 23.0                    | 194.1   | 3,099.6                     | 0.0 | 0.0     |
| Price Contingencies                        | 3,859.68              | 2,547.1           | 69.2                          | 2,269.1                    | 2,225.9                            | 2,190.9   | 17.5                                  | 39.6                    | 890.8   | 14,109.7                    | 5.1 | 725.2   |
| Total Project Costs                        | 20,463.7              | 16,920.7          | 615.2                         | 12,609.2                   | 9,933.9                            | 9,091.5   | 269.5                                 | 522.6                   | 4,967.7 | 75,393.9                    | 5.1 | 3,824.8 |
| Foreign Exchange                           | 8,893.2               | 7,951.1           | 544.8                         | 6,947.0                    | 4,657.0                            | 4,583.2   | 206.6                                 | 407.5                   | 300.6   | 34,491.1                    | 4.9 | 1,674.9 |

<sup>a/</sup> Construction costs are based on recent contracts for similar structures and estimated at US\$375-500 per sq.m. for new buildings, US\$175 per sq.m. for remodeling, and 15% of the building cost for site development. Equipment and furniture costs are based on lists prices in accordance with recent quotations and bids received. Expatriate consulting services are estimated at US\$7,500 per staff month and fellowships from US\$1,500 to US\$2,000 per staff month, depending upon the field of study and the location of the training institution contemplated. The total cost of administering the project is based upon the current annual operational expenditures of the FIU for Loan 1642-BAR, adjusted to reflect the increased staffing and responsibilities under the proposed project and amounts to about 7% of total project costs. Consultant architectural/engineering design and supervision fees averaging 13% of building and site development costs include the emoluments of in-house expatriate architectural/engineering consultants of the FIU.  
Exchange Rate: US\$1.0 = BBS\$2.0.

BARRADOSSECOND EDUCATION AND TRAINING PROJECTSummary of Project Costs a/

| <u>Components</u>                                  | <u>(BD\$'000s)</u> |                 |                 | <u>(US\$'000s)</u> |                 |                 | <u>% Foreign Exchange</u> | <u>% Total Base Costs</u> |
|--|--------------------|-----------------|-----------------|--------------------|-----------------|-----------------|---------------------------|---------------------------|
|  | <u>Local</u>       | <u>Foreign</u>  | <u>Total</u>    | <u>Local</u>       | <u>Foreign</u>  | <u>Total</u>    |                           |                           |
| <b>A. <u>MINISTRY OF EDUCATION AND CULTURE</u></b> |                    |                 |                 |                    |                 |                 |                           |                           |
| 1. Primary Schools                                 | 8,583.6            | 7,149.1         | 15,732.7        | 4,291.8            | 3,574.6         | 7,866.4         | 45                        | 27                        |
| 2. Secondary Schools                               | 7,022.1            | 6,615.6         | 13,637.7        | 3,511.0            | 3,307.8         | 6,818.9         | 49                        | 23                        |
| 3. Samuel J. Prescod Polytechnic                   | 58.0               | 462.0           | 520.0           | 29.0               | 231.0           | 260.0           | 89                        | 1                         |
| 4. Barbados Community College                      | 4,275.3            | 5,572.4         | 9,847.7         | 2,137.6            | 2,786.2         | 4,923.9         | 57                        | 17                        |
| 5. Institutional Development of MOE                | 3,683.2            | 3,633.6         | 7,316.8         | 1,841.6            | 1,816.8         | 3,658.4         | 50                        | 13                        |
| Subtotal   | 23,622.1           | 23,432.8        | 47,054.9        | 11,811.0           | 11,716.4        | 23,527.5        | 50                        | 81                        |
| <b>B. <u>MINISTRY OF LABOR</u></b>                 |                    |                 |                 |                    |                 |                 |                           |                           |
| 1. NTB Skills Centers                              | 3,033.3            | 3,513.7         | 6,547.0         | 1,516.6            | 1,756.9         | 3,273.5         | 54                        | 11                        |
| 2. Manpower Statistics and Research Unit           | 55.5               | 184.5           | 240.0           | 27.8               | 92.3            | 120.0           | 77                        | 0                         |
| Subtotal   | 3,088.8            | 3,698.2         | 6,787.0         | 1,544.4            | 1,849.1         | 3,393.5         | 54                        | 12                        |
| <b>C. <u>OFFICE OF THE PRIME MINISTER</u></b>      |                    |                 |                 |                    |                 |                 |                           |                           |
| 1. Training Administration Unit                    | 100.0              | 360.0           | 460.0           | 50.0               | 180.0           | 230.0           | 78                        | 1                         |
| Subtotal   | 100.0              | 360.0           | 460.0           | 50.0               | 180.0           | 230.0           | 78                        | 1                         |
| <b>D. <u>PROJECT MANAGEMENT</u></b>                |                    |                 |                 |                    |                 |                 |                           |                           |
| 1. Project Implementation Unit                     | 3,637.6            | 245.1           | 3,882.7         | 1,818.8            | 122.6           | 1,941.4         | 6                         | 7                         |
| Subtotal   | 3,637.6            | 245.1           | 3,882.7         | 1,818.8            | 122.6           | 1,941.4         | 6                         | 7                         |
| TOTAL BASELINE COSTS                               | 30,448.4           | 27,736.2        | 58,184.6        | 15,224.2           | 13,868.1        | 29,092.3        | 48                        | 100                       |
| Physical Contingencies                             | 1,684.2            | 1,415.4         | 3,099.6         | 842.1              | 707.7           | 1,549.8         | 46                        | 5                         |
| Price Contingencies                                | 8,770.1            | 5,339.5         | 14,109.7        | 4,385.1            | 2,669.8         | 7,054.8         | 38                        | 24                        |
| <b>TOTAL PROJECT COSTS</b>                         | <b>40,902.8</b>    | <b>34,491.1</b> | <b>75,393.9</b> | <b>20,451.4</b>    | <b>17,245.6</b> | <b>37,696.9</b> | <b>46</b>                 | <b>130</b>                |

NOTE: Figures may not add up due to rounding.

a/ Net of taxes and duties estimated at US\$3.4 million.

BARRADOSSECOND EDUCATION AND TRAINING PROJECT

Financing of Project Costs  
(Costs including Contingencies in US\$000s)

| <u>Components</u>                        | <u>IBRD</u>    |             | <u>IDB</u>     |             | <u>BARRADOS</u> |             | <u>Total Cost</u>    |
|--|----------------|-------------|----------------|-------------|-----------------|-------------|----------------------|
|  | <u>Amount</u>  | <u>%</u>    | <u>Amount</u>  | <u>%</u>    | <u>Amount</u>   | <u>%</u>    |                      |
| Primary Schools                          | 0.0            | 0.0         | 9154.8         | 89.5        | 1076.7          | 10.5        | 10231.5              |
| Secondary Schools                        | 0.0            | 0.0         | 7569.9         | 89.5        | 890.3           | 10.5        | 8460.2               |
| Institutional<br>Strengthening of MOE    | 3218.7         | 64.8        | 0.0            | 0.0         | 1748.4          | 35.2        | 4967.1               |
| Community College                        | 3757.1         | 59.6        | 0.0            | 0.0         | 2547.6          |             |                      |
| SJP Polytechnic                          | 0.0            | 0.0         | 275.2          | 89.5        | 32.4            | 10.5        | 307.6                |
| NIB Skills Centers                       | 2598.6         | 57.2        | 0.0            | 0.0         | 1947.3          | 42.8        | 4545.9               |
| Manpower Research<br>and Statistics Unit | 133.9          | 99.4        | 0.0            | 0.0         | 0.8             | 0.6         | 134.7                |
| Training Admin.                          | 258.6          | 98.9        | 0.0            | 0.0         | 2.8             | 1.1         | 261.4                |
| Project Admin.                           | 33.3           | 1.3         | 0.0            | 0.0         | 2450.6          | 98.7        | 2483.8 <sup>a/</sup> |
| <b>Total</b>                             | <b>10000.0</b> | <b>26.5</b> | <b>17000.0</b> | <b>45.1</b> | <b>10696.9</b>  | <b>28.4</b> | <b>37696.9</b>       |

<sup>a/</sup> Out of the total PIU cost, US\$1.55m corresponds to the IBRD financed components and US\$0.93m corresponds to the IDB financed components. However, IBRD only disburses US\$33,300 (for the equipment) and IDB, none.

## BARBADOS

SECOND EDUCATION AND TRAINING PROJECTProject Implementation Schedule  
(Cumulative Progress in %)

| Project Component                        | CY1986      | CY1987      | CY1988       | CY1989       | CY1990       | CY1991       | CY1992       | CY1993        |
|--|-------------|-------------|--------------|--------------|--------------|--------------|--------------|---------------|
| <b>Civil Works:</b>                      |             |             |              |              |              |              |              |               |
| Primary Schools                          | 7%          | 40%         | 62%          | 88%          | 100%         |              |              |               |
| Secondary Schools                        | 0%          | 51%         | 96%          | 100%         |              |              |              |               |
| Barbados Community College               | 0%          | 28%         | 78%          | 100%         |              |              |              |               |
| NIB Skills Centers                       | 0%          | 22%         | 38%          | 57%          | 76%          | 93%          | 100%         |               |
| MOE Building                             | 0%          | 0%          | 18%          | 67%          | 100%         |              |              |               |
| <b>Procurement: Furniture/Equipment:</b> |             |             |              |              |              |              |              |               |
| Primary Schools                          | 9%          | 38%         | 58%          | 68%          | 100%         |              |              |               |
| Secondary Schools                        | 0%          | 55%         | 94%          | 100%         |              |              |              |               |
| Barbados Community College               | 0%          | 0%          | 73%          | 100%         |              |              |              |               |
| NIB Skills Centers                       | 0%          | 31%         | 41%          | 61%          | 69%          | 91%          | 100%         |               |
| MOE Building                             | 0%          | 0%          | 0%           | 60%          | 100%         |              |              |               |
| Polytechnic                              | 0%          | 76%         | 100%         |              |              |              |              |               |
| Manpower Research Unit                   | 50%         | 100%        |              |              |              |              |              |               |
| Training Administration                  | 50%         | 100%        |              |              |              |              |              |               |
| PIU                                      | 0%          | 100%        |              |              |              |              |              |               |
| <b>Technical Assistance:</b>             |             |             |              |              |              |              |              |               |
| Fellowships                              | 12%         | 36%         | 62%          | 82%          | 100%         |              |              |               |
| Special Services                         | 17%         | 57%         | 82%          | 92%          | 100%         |              |              |               |
| <b>Local Training:</b>                   |             |             |              |              |              |              |              |               |
|  | 0%          | 9%          | 27%          | 52%          | 78%          | 100%         |              |               |
| <b>Studies</b>                           |             |             |              |              |              |              |              |               |
|  | 0%          | 18%         | 37%          | 57%          | 78%          | 100%         |              |               |
| <b>Professional Services</b>             |             |             |              |              |              |              |              |               |
|  | 18%         | 38%         | 60%          | 83%          | 90%          | 95%          | 100%         |               |
| <b>Evaluation:</b>                       |             |             |              |              |              |              |              |               |
| Reading/Writing Test Scores              |             | Report 1    |              |              |              |              |              |               |
| Secondary curriculum/teaching            |             |             |              |              | Report 1     |              |              |               |
| Textbook procurement/distrib.            |             | Report 1    |              |              |              |              |              |               |
| NIB training programs                    |             | Report 1    |              |              |              |              |              |               |
| BOC training programs                    |             |             |              |              | Report 1     |              |              |               |
| Public sector training programs          |             | Report 1    |              |              |              |              |              |               |
| MRS data analysis                        |             | Report 1    |              |              |              |              |              |               |
| Education management practices           |             | Report 1    |              |              |              |              |              |               |
| MOE budgetary practices                  |             | Report 1    |              |              |              |              |              |               |
| Educ. materials improvement              |             | Report 1    |              |              |              |              |              |               |
| <b>LOAN DISBURSEMENT</b>                 | <b>1.5%</b> | <b>9.6%</b> | <b>30.2%</b> | <b>58.1%</b> | <b>80.5%</b> | <b>92.6%</b> | <b>97.9%</b> | <b>100.0%</b> |

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

Disbursement Schedule

SCHEDULE 1

Allocation of Loan Proceeds

| <u>Category of Expenditures</u>  | <u>Amount of the Loan Allocated (Expressed in Dollar Equivalent)</u> | <u>% of Expenditures to be Financed</u>   |
|--|--|---|
| 1. Civil Works   | 4,150,000  | 44%   |
| 2. Furniture, Equipment and Educational Materials                      | 2,950,000  | 100% of foreign expenditures and 85% of local expenditures for items locally procured . |
| 3. Consultants' Services, Training, Fellowships, and Studies           | 1,920,000  | 100%  |
| 4. Professional Fees for architectural, engineering and other services | 480,000  | 50%   |
| 5. Unallocated   | <u>500,000</u>   |   |
| TOTAL  | <u>10,000,000</u>  |   |

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

Disbursement Schedule

| TOTAL PROJECT<br>EXPEND/DISBURSEMENT | CY86   |        | CY87    |         | CY88    |         | CY89    |         | CY90    |         | CY91    |         | CY92    |         | TOTAL   |         |
|--------------------------------------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                      | Expend | Disbur | Expend  | Disbur  | Expend  | Disbur  | Expend  | Disbur  | Expend  | Disbur  | Expend  | Disbur  | Expend  | Disbur  | Expend  | Disbur  |
| Per Period                           | 1759.9 | 1264.2 | 11032.1 | 8759.6  | 11411.6 | 8581.5  | 7596.4  | 5135.3  | 4001.8  | 2335.3  | 1222.1  | 518.0   | 676.0   | 186.2   | 37696.9 | 27000.0 |
| Cumulative                           | 1759.9 | 1264.2 | 12792.0 | 10023.8 | 24204.6 | 18605.3 | 11797.0 | 23740.6 | 15798.8 | 26295.9 | 17020.9 | 26813.8 | 17696.9 | 27000.0 | 37696.9 | 27000.0 |
| % of Total                           | 4.6%   | 4.6%   | 33.9%   | 27.1%   | 64.2%   | 68.9%   | 84.3%   | 87.9%   | 94.9%   | 97.3%   | 98.2%   | 99.3%   | 100.0%  | 100.0%  |         |         |

| IBRD<br>COMP | Period<br>Cumulat | CY86   |        | CY87   |        | CY88   |        | CY89    |        | CY90    |        | CY91    |        | CY92    |         | TOTAL   |         |
|--------------|-------------------|--------|--------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|---------|---------|---------|
|              |                   | Expend | Disbur | Expend | Disbur | Expend | Disbur | Expend  | Disbur | Expend  | Disbur | Expend  | Disbur | Expend  | Disbur  | Expend  | Disbur  |
| IBRD         | Period            | 649.0  | 445.3  | 2986.7 | 1775.2 | 5311.7 | 3289.0 | 4561.5  | 2356.7 | 2360.1  | 1229.7 | 1222.1  | 518.0  | 676.0   | 186.2   | 17769.1 | 10000.0 |
| COMP         | Cumulat           | 649.0  | 445.3  | 3635.7 | 2220.4 | 8947.4 | 3509.4 | 13510.9 | 8066.2 | 15871.0 | 9295.9 | 17095.1 | 9813.8 | 17769.1 | 10000.0 | 17769.1 | 10000.0 |
|              | TOTAL             | 3.6%   | 4.4%   | 20.4%  | 22.2%  | 50.3%  | 55.9%  | 76.0%   | 80.6%  | 89.3%   | 92.9%  | 96.2%   | 98.1%  | 100.0%  | 100.0%  |         |         |

| DISBURSEMENT PROFILE:<br>of IBRD COMPONENTS | CY86/1 |        | CY86/2 |        | CY87/1 |        | CY87/2 |        | CY88/1 |        | CY88/2 |        | CY89/1 |        | CY89/2  |  | CY90/1 |  | CY90/2 |  | CY91/1 |  | CY91/2 |  | CY92/1 |  | CY92/2 |         | TOTAL   |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--|--------|--|--------|--|--------|--|--------|--|--------|--|--------|---------|---------|
|   | FY86/2 | FY87/1 | FY87/2 | FY88/1 | FY88/2 | FY89/1 | FY89/2 | FY90/1 | FY90/2 | FY91/1 | FY91/2 | FY92/1 | FY92/2 | FY93/1 | FY93/2  |  |        |  |        |  |        |  |        |  |        |  |        |         |         |
| End of CY Expenditure                       |        |        | 649.0  |        | 2986.7 |        | 3313.7 |        | 4561.5 |        | 2360.1 |        | 1222.1 |        | 676.0   |  |        |  |        |  |        |  |        |  |        |  |        |         | 17769.1 |
| End of CY Disbursement                      |        |        | 445.3  |        | 1775.2 |        | 3289.0 |        | 2356.7 |        | 1229.7 |        | 518.0  |        | 186.2   |  |        |  |        |  |        |  |        |  |        |  |        |         | 10000.0 |
| Seasonal Disbursement                       | 222.6  | 222.6  | 887.6  | 887.6  | 1644.5 | 1644.5 | 1278.4 | 1278.4 | 614.9  | 614.9  | 259.0  | 259.0  | 93.1   | 93.1   |         |  |        |  |        |  |        |  |        |  |        |  |        |         | 10000.0 |
| End of FY Disbursement                      | 222.6  |        | 1110.2 |        | 2532.1 |        | 2922.9 |        | 1893.2 |        | 873.8  |        | 332.1  |        | 10000.0 |  |        |  |        |  |        |  |        |  |        |  |        |         | 10000.0 |
| Withdrawals (4 month lag)                   | 148.4  | 74.2   | 740.1  | 370.1  | 1688.1 | 844.0  | 1948.6 | 974.3  | 1262.2 | 631.1  | 382.6  | 291.3  | 234.7  | 117.4  | 93.1    |  |        |  |        |  |        |  |        |  |        |  |        |         | 10000.0 |
| End of FY Disbursement                      | 148.4  |        | 814.4  |        | 2058.1 |        | 2792.6 |        | 2236.4 |        | 1215.6 |        | 526.0  |        | 10000.0 |  |        |  |        |  |        |  |        |  |        |  |        |         | 10000.0 |
| % of Total Disbursement                     | 1.5%   |        | 8.1%   |        | 9.6%   |        | 27.9%  |        | 22.4%  |        | 12.1%  |        | 5.3%   |        | 100.0%  |  |        |  |        |  |        |  |        |  |        |  |        | 100.0%  |         |
| Cumulative Disbursement                     | 148.4  |        | 962.8  |        | 30.9%  |        | 5813.5 |        | 8049.9 |        | 9263.6 |        | 9789.6 |        | 10000.0 |  |        |  |        |  |        |  |        |  |        |  |        | 10000.0 |         |
| % of Total Disbursement                     | 1.5%   |        | 9.6%   |        | 3.2%   |        | 58.1%  |        | 80.5%  |        | 92.6%  |        | 97.9%  |        | 100.0%  |  |        |  |        |  |        |  |        |  |        |  |        | 100.0%  |         |

| Regional Profile:   | YR 1               | YR 2  | YR 3  | YR 4  | YR 5  | YR 6   | YR 7   | YR 8   | YR 9  | YR 10 | LN 1642-BMR<br>9000000.0 Original<br>12000000.0 W/Supplet |
|---------------------|--------------------|-------|-------|-------|-------|--------|--------|--------|-------|-------|---|
|                     | EDUCATION PROJECTS | 1.0%  | 6.0%  | 16.0% | 26.7% | 43.0%  | 56.0%  | 69.0%  | 80.0% | 89.0% |   |
| ALL SECTORS         | 4.0%               | 15.0% | 31.0% | 51.0% | 70.0% | 84.0%  | 94.0%  | 100.0% |       |       |   |
| 1642-BMR (Original) | 0.0%               | 9.6%  | 27.7% | 50.7% | 73.8% | 95.7%  | 127.8% | 133.3% |       |       |   |
| (w/Supplet)         | 0.0%               | 7.2%  | 20.8% | 38.1% | 55.4% | 71.7%  | 95.8%  | 100.0% |       |       |   |
| THIS PROJECT:       |                    |       |       |       |       |        |        |        |       |       |   |
| TOTAL               | 1.6%               | 14.7% | 42.3% | 70.0% | 87.9% | 97.3%  | 99.2%  | 100.0% |       |       |   |
| IBRD                | 1.5%               | 9.6%  | 30.2% | 58.1% | 80.5% | 92.6%  | 97.9%  | 100.0% |       |       |   |
| IBD                 | 1.6%               | 17.7% | 49.4% | 76.9% | 92.3% | 100.0% |        |        |       |       |   |

BARBADOS  
SECOND EDUCATION AND TRAINING PROJECT

Procurement Arrangements

| <u>Project Element</u>              | <u>Procurement Method</u> |                              |                | <u>Total Cost</u> |
|-------------------------------------|---------------------------|------------------------------|----------------|-------------------|
|                                     | <u>ICB</u>                | <u>LCB</u><br>(US\$ million) | <u>OTHER</u>   |                   |
| Civil Works                         | 6.78                      | 3.00                         | 0.11 <u>a/</u> | 9.89              |
| Furniture                           | 0.30                      | 0.38                         | 0.08 <u>a/</u> | 0.76              |
| Equipment and Educational Materials | 1.93                      | 0.50                         | 0.15 <u>a/</u> | 2.58              |
| Technical Assistance and studies    | 1.82                      | 0.00                         | 0.20 <u>b/</u> | 2.02              |
| Professional Services               | 0.00                      | 0.69                         | 0.31 <u>c/</u> | 1.00              |
| Project Administration              | 0.00                      | 0.00                         | 1.52 <u>d/</u> | 1.52              |
| <b>Total</b>                        | <b>10.83</b>              | <b>4.57</b>                  | <b>2.37</b>    | <b>17.77</b>      |
| <b>%</b>                            | <b>61%</b>                | <b>26%</b>                   | <b>13%</b>     | <b>100%</b>       |

a/ Local shopping

b/ Includes contracting of studies, training, and specialist services.

c/ In-house consultants of the PIU.

d/ Procured through local acquisition procedures.

Limits on Type of Procurement and Prior Review Thresholds (US\$000)

| <u>Type of Contract</u>                               | <u>Prior Review Limit</u> | <u>Contract Value</u>                                 | <u>Aggregate Limit</u> | <u>Type of Procurement</u>  |
|---|---------------------------|---|------------------------|---|
| <u>Civil Works</u>                                    | 500                       | greater than or equal to 1,000 (BCC and MOE building) | -                      | ICB   |
|   |                           | less than 1,000 (NTB skills centers)                  | 3,000                  | ICB with foreign bidders having the opportunity to participate.           |
| <u>Furniture, Equipment and Educational Materials</u> | 100                       | greater than or equal to 50                           | -                      | ICB   |
|   |                           | 20-50   | 500                    | ICB with foreign bidders having the opportunity to participate.           |
|   |                           | up to 20  | 200                    | Price quotations from at least three bidders.                             |
| <u>Specialist Services, Studies and Training</u>      | 50                        | greater than or equal to 100                          |                        | Proposals invited from short list of international and local consultants. |

BARBADOS  
SECOND EDUCATION AND TRAINING PROJECT

Monitoring Indicators

| PROJECT OBJECTIVE   | COMPONENTS OF ACTIVITIES   | HOW MEASURED  | WHEN MEASURED         | PROJECT TOTAL TARGET                 | IMPLEMENTATION PERIOD             |                      |                       |                       |                      |                      |                      |                      |                    |
|---|--|---|-----------------------|--------------------------------------|-----------------------------------|----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|--------------------|
|   |  |   |                       |                                      | CY86                              | CY87                 | CY88                  | CY89                  | CY90                 | CY91                 | CY92                 | CY93                 |                    |
| 1.00 OBJECTIVE A:<br>Improve the cost effectiveness of primary and secondary education  | 1.10 Amalgamating 21 small, uneconomic primary schools into 10 larger schools to obtain higher student/teacher ratios  | 1.11 Number of schools built  | Annually              | 10 new                               | -                                 | 2                    | 5                     | 8                     | 10                   | -                    | -                    | -                    |                    |
|   |  | 1.12 Number of schools amalgamated                                  | Annually              | 21 replace                           | -                                 | 5                    | 11                    | 17                    | 21                   | -                    | -                    | -                    |                    |
|   |  | 1.13 Student/teacher ratios in project schools                      | At project completion | 1:27                                 | 1:27                              | -                    | 1:24                  | -                     | 1:25                 | -                    | -                    | 1:27                 |                    |
|   |  | 1.14 Unit cost per student place                                    | At project completion | US\$1,184 (1986 \$)                  | -                                 | -                    | -                     | -                     | US\$1,184            | -                    | -                    | -                    |                    |
|   | 1.20 Upgrading 3 existing secondary schools and establishing one new 1,200-place secondary school  | 1.21 Number of schools upgraded                                     | Annually              | 3 upgrade                            | -                                 | 1                    | 2                     | 3                     | -                    | -                    | -                    | -                    |                    |
|   |  | 1.22 Number of new schools established                              | Annually              | 1 new                                | -                                 | -                    | 1                     | -                     | -                    | -                    | -                    | -                    |                    |
|   |  | 1.23 Student/teacher ratios   | Annually              | 1:23                                 | 1:19                              | -                    | 1:20                  | -                     | 1:21                 | -                    | -                    | 1:23                 |                    |
|   |  | 1.24 Number of children in schools with good physical facilities    | Annually              | 4,320 prim<br>600 sec                | -                                 | 800<br>1,200         | 2,400<br>2,400        | 3,500<br>4,000        | 4,700                | -                    | -                    | -                    |                    |
|   | 1.30 Providing technical assistance & training to:<br>(a) improve reading and writing in primary schools   | 1.31 Number of staff months of Technical assistance provided        | Annually              | 44 m Feb<br>36 m Sp                  | -                                 | 4 m<br>3 m           | 13 m<br>11 m          | 24 m<br>29 m          | 35 m<br>36 m         | 44 m                 | -                    | -                    |                    |
|   |  | 1.32 Number of teacher/administrators trained                       | Annually              | 1800 tchr<br>32 admin                | prep prog<br>prep prog            | 180 tchr<br>16 admin | 540 tchr<br>32 admin  | 1000 tchr<br>32 admin | 1440 tchr            | 1800 tchr            | final<br>evaluatn    | -                    |                    |
|   | (b) improve teaching of special subjects in secondary schools<br>(c) improve curricular implementation strategy<br>(d) improve the textbook procurement and distribution system  | 1.33 Reading/writing test scores of primary students                | Annually              | -                                    | design<br>measurement<br>criteria | start of<br>evaluatn | yearly<br>evaluatn    | yearly<br>evaluatn    | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   |                    |
|   |  | 1.34 Whether systems have been established                          | At project completion | -                                    | -                                 | initial<br>evaluatn  | -                     | -                     | -                    | -                    | final<br>evaluatn    | -                    |                    |
|   |  | 1.35 Number of textbooks procured and distributed                   | Annually              | to be de-<br>termined                | policy<br>reviewed                | start of<br>evaluatn | yearly<br>evaluatn    | yearly<br>evaluatn    | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   |                    |
|   |  | 1.36 Number of textbooks available in classrooms (per subject area) | Annually              | to be de-<br>termined                | start of<br>evaluatn              | yearly<br>evaluatn   | yearly<br>evaluatn    | yearly<br>evaluatn    | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | final<br>evaluatn    |                    |
| 2.00 OBJECTIVE B:<br>Expand and improve the efficiency, quality and industrial relevance of technical and vocational training | 2.10 Expanding the operations of the National Training Board through the construction, furnishing and equipping of three new skills training centers and equipping of one existing center  | 2.11 Number of centers built or upgraded                            | Annually              | 3 new<br>1 upgrade                   | -                                 | -                    | 1                     | -                     | 2                    | -                    | -                    | 3                    |                    |
|   |  | 2.12 Number of persons trained                                      | Annually              | 1,000 new<br>500 upgd                | -                                 | -                    | 250/year<br>125/year  | 500/year<br>600/year  | 500/year<br>800/year | 750/yr<br>1,000/yr   | 750/yr<br>1,200/yr   | 1,000/yr<br>1,400/yr |                    |
|   |  | 2.13 Number of training hours provided                              | Annually              | 400 hrs/<br>center/yr                | -                                 | 200/year             | 600/year              | 800/year              | 1,000/year           | 1,200/year           | 1,400/year           | -                    |                    |
|   |  | 2.14 NIB's evaluation of relevance and quality of training programs | Annually              | -                                    | develop<br>criteria               | start of<br>evaluatn | yearly<br>evaluatn    | yearly<br>evaluatn    | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | final<br>evaluatn    |                    |
|   |  | 2.15 Number of women trained  | Annually              | 300/year                             | -                                 | -                    | 70/year               | 150/year              | 150/year             | 220/year             | 220/year             | 300/year             |                    |
|   | 2.20 Upgrading and expansion of training at the Barbados Community College and improving efficiency in the use of existing facilities  | 2.21 BCC expanded/upgraded  | Annually              | 1 upgrade                            | -                                 | start<br>construct   | complete<br>construct | start<br>operation    | 120/year             | 150/year             | 180/year             | 200/year             | 200/year           |
|   |  | 2.22 Number of persons trained                                      | Annually              | 200/year                             | -                                 | -                    | -                     | develop<br>criteria   | start of<br>evaluatn | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn |
|   |  | 2.23 Management's evaluation of quality improvement                 | Annually              | -                                    | -                                 | -                    | -                     | develop<br>criteria   | start of<br>evaluatn | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn |
|   | 2.30 Improving efficient use of Samuel Jackson Presscod Polytechnic facilities   | 2.24 Number of women trained  | Annually              | 120/year                             | -                                 | -                    | -                     | -                     | 90/year              | 100/year             | 120/year             | 120/year             | 120/year           |
|   |  | 2.31 Number of non-SJPP students sharing use of facilities          | Annually              | 700 part-t<br>120 full-t<br>per year | -                                 | dev. plan<br>sharing | implement<br>sharing  | 360/year<br>60/year   | 500/year<br>100/year | 600/year<br>120/year | 700/year<br>120/year | 700/year<br>120/year |                    |
|   | 2.40 Providing TA for:<br>(a) industrial advisory committees<br>(b) industrial job analysis<br>(c) follow-up of graduates<br>(d) improvements in the training of public sector managers<br>(e) improving manpower information gathering, processing & analysis | 2.32 Management's evaluation of quality                             | Annually              | -                                    | develop<br>criteria               | start of<br>evaluatn | yearly<br>evaluatn    | yearly<br>evaluatn    | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | final<br>evaluatn  |
|   |  | 2.33 Number of women trained  | Annually              | 250/year                             | -                                 | -                    | -                     | -                     | 100/year             | 120/year             | 150/year             | 200/year             | 250/year           |
|   |  | 2.41 Assessment of training plans for public sector managers        | Annually              | -                                    | develop<br>criteria               | start of<br>evaluatn | yearly<br>evaluatn    | yearly<br>evaluatn    | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | final<br>evaluatn  |
|   |  | 2.42 Assessment of data analysis efforts                            | Annually              | -                                    | finalize<br>criteria              | start of<br>evaluatn | yearly<br>evaluatn    | yearly<br>evaluatn    | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | final<br>evaluatn  |
| (e) improving manpower information gathering, processing & analysis   | 2.43 Staff months of TA provided   | Annually  | 188 m Feb<br>39 m Sp  | 39 m<br>10 m                         | 84 m<br>30 m                      | 126 m<br>39 m        | 158 m                 | 188 m                 | -                    | -                    | -                    |                      |                    |
|   | 2.44 Evaluation of TA effectiveness  | Annually  | -                     | start of<br>evaluatn                 | yearly<br>evaluatn                | yearly<br>evaluatn   | yearly<br>evaluatn    | yearly<br>evaluatn    | final<br>evaluatn    | -                    | -                    |                      |                    |
| 3.00 OBJECTIVE C:<br>Strengthen the institutional capacity to plan and manage the education and training system               | 3.10 Providing TA for:<br>(a) education planning and management<br>(b) introducing long-term budgeting processes and cost savings mechanisms<br>(c) improving production of printed materials  | 3.11 Staff months of TA provided                                    | Annually              | 26 m Feb<br>26 m Sp                  | 3 m<br>3 m                        | 8 m<br>8 m           | 15 m<br>15 m          | 21 m<br>21 m          | 26 m<br>26 m         | -                    | -                    |                      |                    |
|   |  | 3.12 Assessment of education management & planning                  | Annually              | -                                    | finalize<br>criteria              | start of<br>evaluatn | yearly<br>evaluatn    | yearly<br>evaluatn    | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | final<br>evaluatn    |                    |
|   |  | 3.13 Assessment of improvements in budgeting processes              | Annually              | -                                    | finalize<br>criteria              | start of<br>evaluatn | yearly<br>evaluatn    | yearly<br>evaluatn    | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | final<br>evaluatn    |                    |
|   |  | 3.14 Assessment of quality of printed materials                     | Annually              | -                                    | finalize<br>criteria              | start of<br>evaluatn | yearly<br>evaluatn    | yearly<br>evaluatn    | yearly<br>evaluatn   | yearly<br>evaluatn   | yearly<br>evaluatn   | final<br>evaluatn    |                    |
|   | 3.20 Providing adequate facilities for the MOE   | 3.21 Construction of new facilities                                 | Annually              | 1 new                                | -                                 | finalize<br>design   | start<br>construct    | complete<br>construct | start<br>operation   | -                    | -                    | -                    |                    |
|   |  | 3.22 MOE staff assessment of new facilities                         | 2nd/yr of occupancy   | -                                    | -                                 | -                    | -                     | -                     | -                    | start of<br>evaluatn | -                    | -                    |                    |
|   | 3.30 Adopting measures to increase savings and efficiency  | 3.31 Conduct studies and assess feasibility for implementation      | At project completion | -                                    | draft<br>TORs                     | finalize<br>TORs     | initiate<br>studies   | -                     | finalize<br>report   | discuss<br>w/IBRD    | update<br>report     | adopt<br>reconstrn   |                    |

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

Independent Audit Situation

The independent auditors' report on the financial execution of the First Education Project (Loan 1642-BAR), has been prepared by Brian Griffith and Co. within the deadline contemplated in the loan agreement, which is March 31 of each year.

The auditors have issued a clear statement according to which, the statement of source and application of funds, and the supplementary financial information on the project, present fairly the funds contributed to the Project by the Government of Barbados through the Ministry of Education, as well as the funds from and the status of Loan 1642-BAR, in accordance with generally accepted accounting principles and the conditions established in the operational loan.

The independent auditors have issued a separate report on compliance with the financial and accounting covenants since FY83. The reports state that the Borrower and the Project Unit have complied with all conditions of the Loan Agreement, and make special reference to the adequacy of the system of accounts for recording, monitoring and reporting the utilization of funds in the project by origin, and related costs and benefits.

Brian Griffith and Co. is a small, national firm of chartered accountants with a small but faithful clientele. The auditing firm was visited and thoroughly briefed by a Bank mission on the Bank's audit reporting requirements, produced a good report for FY84, and incorporated improvements recommended by the Bank for FY85. The audit report for FY86, which was underway by March 31, 1986, will be issued also within the agreed deadline and will reflect the latest Bank audit refinements. Brian Griffith and Co. has been designated by the Borrower as the auditor for the Second Education and Training Project.

BARBADOS

SECOND EDUCATION AND TRAINING PROJECT

List of Documents Available in the Project File

A. Selected Working Papers

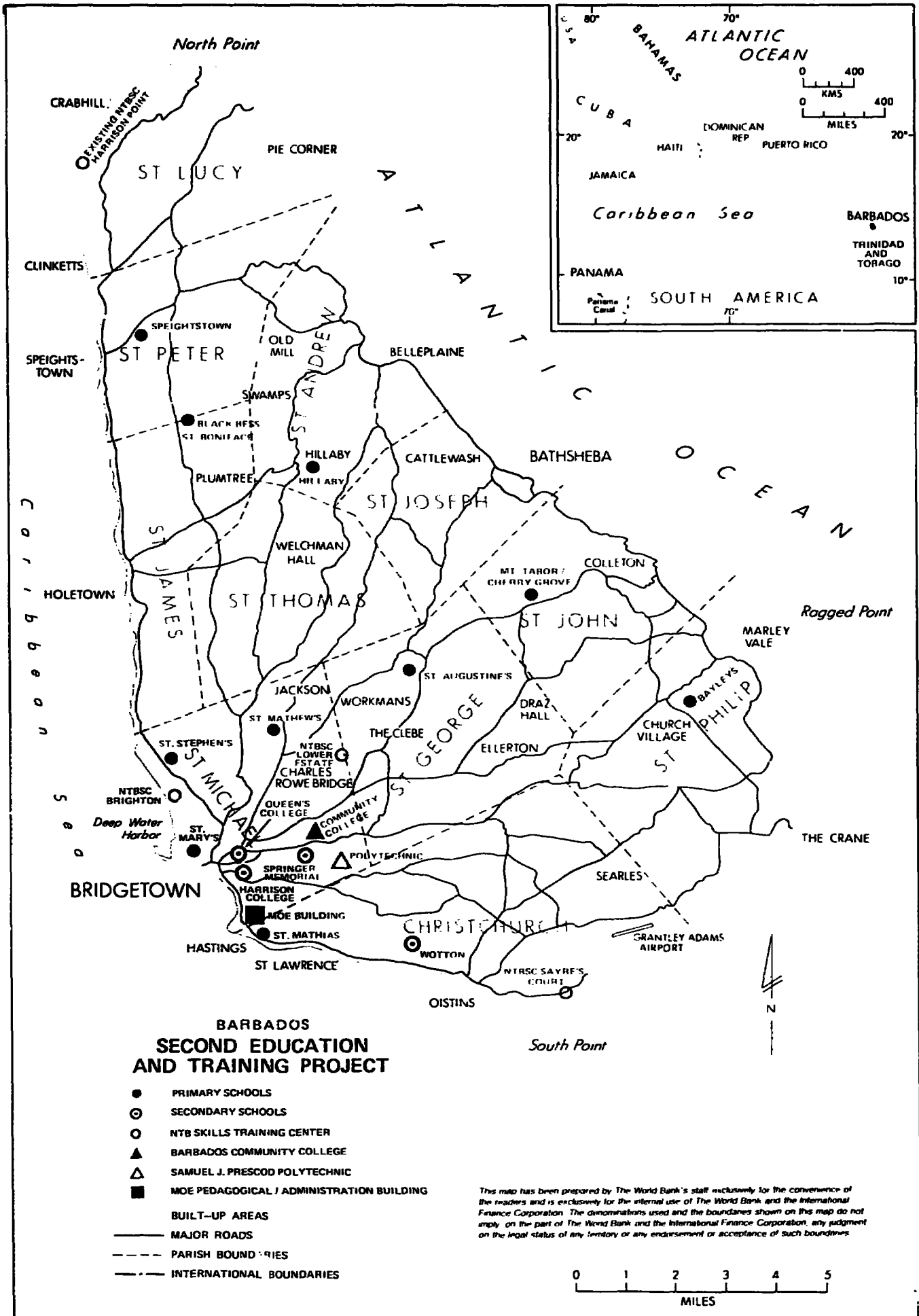
- A1. Loan Request to be Submitted to the World Bank: Vols I-III, (May 1985).
- A2. Barbados First Draft Proposals in Report of Second Stage Loan to the World Bank (September 14, 1984).
- A3. Project Proposal, Funding Under the Proposed Second World Bank Project. TITLE: Manpower Survey for Barbados.
- A4. Proposal for the Provision of Data Processing Facilities for the Statistical Service.
- A5. Micro Computer Project, Ministry of Finance and Planning.
- A6. Government of Barbados Training Administration. A Proposal for the Expansion and Improvement of Management Training in the Public Service.
- A7. IBRD/Barbados Proposed Second Education Loan Project - Pedagogical Unit.
- A8. Draft Project Proposal  
TITLE: Strengthening the National Vocational Training Scheme.
- A9. Barbados Community College  
Design Report and Architectural Design Plans
- A10. The Ministry of Education Headquarters Complex, Marine House
- A11. Skills Training Centre, Sayes Court Architectural Plans
- A12. Wotton/Kingsland Secondary School  
Architectural and Structural Plans and Technical Specifications
- A13. Queen's College  
Architectural and Structural Plans and Bills of Quantities
- A14. St. Stephen's Primary School, Architectural Plans
- A15. Bayley's Primary School, Architectural Plans
- A16. St. Mary's Primary School, Architectural Plans
- A17. Primary Schools, Equipment and Furniture Lists
- A18. Equipment and Furniture Lists  
Samuel Jackman Prescod Polytechnic  
Barbados Community College  
National Training Board Skills Training Centres  
Manpower Research and Statistics Unit
- A19. Furniture and Equipment Bidding Documents (Draft)
- A20. Educational Worksheets
- A21. Proposed Programme for Sharing Between the Secondary Schools and the Samuel Jackman Prescod Polytechnic
- A22. Detailed Project Cost Tables
- A23. Detailed Plan for Sharing Project Costs  
Between the Bank, the IDB and the Government
- A24. Draft Project Proposal  
Strengthening the National Vocational Training Scheme
- A25. Project Working Papers

B. General Reports and Studies on the Sector

- B1. Statement of Philosophy Relating to Primary Schools of Barbados, 1980.
- B2. Syllabus for Primary Schools:
  - Language Arts
  - Social Studies
  - Religion and Moral Education
- B3. Government Secondary Schools of Barbados, A Guide (1985)
- B4. Science Curriculum Guide, Years 1-3
- B5. Primary Mathematics Teachers Guide
- B6. Teaching/Learning Experiences, 7-8<sup>+</sup> year olds
- B7. Core Curriculum Outline, 7-8<sup>+</sup> year olds
- B8. Integrated Language Arts Scheme, 7-8<sup>+</sup> year olds
- B9. Proposed Curriculum for Junior Secondary Stage
- B10. Geography in the Field
- B11. Industrial Arts in Secondary Education
- B12. Syllabus for Secondary Schools:
  - Spanish
  - Geography
  - Agricultural Science
  - Language Arts
  - History
- B13. Caribbean Examinations Council, Annual Report, 1983
- B14. Caribbean Examinations Council  
Secondary Education Certificate Fact Sheet
- B15. Caribbean Examinations Council  
Secondary Education Certificate  
General and Basic Proficiency Examinations (June 1983, June 1984)
- B16. Caribbean Examinations Council  
Secondary Education Certificate - Syllabuses (16 subjects)
- B17. Caribbean Examinations Council - The Examinations System
- B18. BIMAP Annual Report and Financial Statements (1981-1983)
- B19. Barbados National Training Board  
Annual Report for the Year (April 1983 - March 1984)
- B20. Samuel Jackman Prescod Polytechnic  
Report for the Academic Year 1982-1983
- B21. Barbados Community College  
Annual Report for Academic Year (Sept 1983 - August 1984)
- B22. Barbados Community College  
Statement of Grants for Financial Year 1983-1984
- B23. BIMAP - External Management Training Prospects for 1985
- B24. Ministry of Education Draft Estimates 1985-1986
- B25. BIMAP - 1982 Annual Report and Financial Statements
- B26. BIMAP - Management, Training Programme
- B27. The National Training School of Barbados  
Report on the Skills Training Programme for 1984

**C. General Reports and Studies**

- C1. Barbados Estimates 1985-86
- C2. Barbados Economic Report 1984
- C3. Central Bank of Barbados Annual Report 1984
- C4. Barbados Industrial Development Corporation:  
Annual Reports 1980 through 1983
- C5. Dictionary of Occupational Classifications for Barbados:  
Interim Publication on Select Hotel Occupations 1984  
Beer and Malt Products Manufacturing 1985  
Select Construction Occupations 1985
- C6. Development Plan 1983-1987  
Barbados Industrial Development Corporation
- C7. Demographic Data, March 1984  
Ministry of Labour, Social Security and Sports
- C8. Labour Market Information Report, 1976-1983
- C9. Barbados Development Plan 1983-1988



**BARBADOS  
SECOND EDUCATION  
AND TRAINING PROJECT**

- PRIMARY SCHOOLS
- ⊙ SECONDARY SCHOOLS
- NTB SKILLS TRAINING CENTER
- ▲ BARBADOS COMMUNITY COLLEGE
- △ SAMUEL J. PRESCOD POLYTECHNIC
- MOE PEDAGOGICAL / ADMINISTRATION BUILDING
- BUILT-UP AREAS
- MAJOR ROADS
- - - PARISH BOUNDARIES
- - - INTERNATIONAL BOUNDARIES

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