EDUCATION PLANNING MANAGEMENT

INFORMATION SYSTEM (EPMIS)

Professor H N Pandit and Mrs. Vazi Okhandiar

ACKNOWLEDGMENTS

- Dr. Didacus Jules, Permanent Secretary
- Ms. Marie-Grace Auguste, Project Manager/BERP
- Mr. Paul Sammy, Chief Education Officer
- Ms. Maria Plummer, Manager MIS
- Mr. Urban Preville, Statistician MIS
- Mr. Mark Ernest, Statistician - OECS
- Mr. Peter Joseph, Education Officer Planning
- Ms. Catherine Albert, Education Research Officer
- Mr. Edwin St. Catherine, Director of Statistics

TABLE OF CONTENTS

Preface

Introduction

Location

One of the Windward Islands, located between Martinigue 21 miles to the North, St. Vincent 26 miles to the South and 110 miles to the North West of Barbodas.

Area

240.6 square miles, about four times the size of the District of Colombia.

Topography

Mountainous, intersected by numerous short rivers, highest peak is Mount Jimie (3145 feet) and there are many wide fertile valleys. Flat industrial areas dominate the northern and southern parts of the island.

Climate

Mild with almost conatant North East Trade Winds; the mean temperature is 79 degrees Farenheit, the rainy season is from June to November.

Population

Total Population 1992 census : 138,151.

Average Annual Rate of Growth

1992: 6.2%

Reproduction Rate

1991: 1.65%

Population Density

1992: 659 per square mile

Adult Literacy

Better than 85%.

Education

Primary education is free and compulsory, secondary education is also free. There are industrial, technical and teacher training institues, a branch of the University of the West Indies and an adult literacy programme. Primary school enrolment in 1992 was 32, 411 and secondary school enrolment 8, 155.

History

The actual date of discovery of St. Lucia by European is unknown, although the English attempted unsuccessfully to colonize the island in 1605 and 1638. It was settled by the French in 1650 and changed hands fourteen times before it became a British Crown Colony in 1814 under the Treaty of Paris.

St. Lucia was a member of the Windwas islands Federal system until December 1959 and a member of the West Indies Federation from 1958 until 1962.

Having been granted full autonomy in internal affairs with the Unitedd Kingdom retaining

responsibility for defence and foreign relations the island joined the West Indies Associated states in March 967. St. Lucia became an independent nation within the British Commonwealth on 22nd. Februrary 1979.

Government

St. Lucia is a constitutional monarchy. Executuve power is vested in the British Sovereign as Head of State, represented in St. Lucia by the Governer General who is appointed on the advice of the Prime Minister. The Prime Minister must have the majority support of the House, to which he and his Cabiner are responsible. Parliament exercises legislative power.

The 17 member House of Assembly is elected by universal adult suffrage for up to a five term. The 11 member Senate is composed of six members appointed on the advice of the Prime Minister, three appointed on the advice of the leader of the opposition and two on the advice of the Governor General. The legal system is based on English common law and "Code Napolean". The highest judicial body is the Privy Council of the United Kingdom.

Background on Education Statistics Gathering Mechanism at St. Lucia

St. Lucia has a long history of collecting statistical data for administrative purposes. In fact, the educational data gathering exercise by the Ministry started as early as the late 1960's. Towards the middle of 1970's, there was a significant change in the scope and presentation of educational data. With the introduction of computers in 1980's, there were further improvements in the analysis and presentation of data in the Statistical documents produced by the Ministry. However, a quick examination of statistical documents produced by the Ministry before the intervention by the OECS in early 1990's revealed that the proliferation of data made it difficult to locate key

information required for administrative and planning purposes.

It is only in 1997 that the Ministry of Education with the help of OECS has been able to produce a comprehensive **Educational Statistical Digest** based on data collected for 1994 - 1995. Because the data presented in the Digest has a time lag of three years, it is of limited value for planning purposes. The Consultants also noted that the data gathering exercise for the past three years is at different stages of progress. ***Therefore, the Consultants recommend the data for these years should quickly be collected, processed and made available to users for planning and management purposes.***

Evaluation of Questionnaires

Currently, the data is being collected by the Ministry with the help of following five types of Questionnaires produced by OECS under its scheme of the Educational Management Information System (EMIS) for its member countries:

- Pre Schools Questionnaire
- Primary Schools Questionnaire
- Secondary Schools Questionnaire
- Tertiary Institutions Questionnaire
- Adult and Continuing Education Questionnaire

During the course of their discussions with the Principals of Primary and Secondary schools, the Consultants found that the Questionnaires are very complex and are of unmanageable size. As a result of these two problems, there have been delays in collecting filled up Questionnaires from the schools / institutions.

In view of above short comings, the present data gathering exercise lacks **validity, reliability and**

timeliness aspects of any sound educational statistical system designed to meet the needs of educational planners and managers at all levels of education. ***Therefore, the Consultants recommend that the Ministry in collaboration with OECS and the Director of Statistics should review and revise the Questionnaires and make them simple so that the data gathering exercise becomes more effective and efficient.***

Broadening the Scope of the Planning Unit

The Consultants learnt that the Ministry of Education had set up a Management Information System (MIS) Technical Advisory Committee in 1997 with the following membership:

- Mr. Mark Ernest, OECS Chairman
- Mr. Edwin St. Catherine, Department of statistics.
- Ms. Maria Plummer, MIS Manager.
- Mr. Cletus Bertine, Financial Management Project.
- Mr. Urban Preville, Data Management Unit.
- Mr. Gerrit Scheper, Computer Center Limited.

The Committee recommended that the present Data Management Unit should be replaced by the MIS Department to provide information services for the entire Ministry and the following functions performed by the Unit should be transferred to the Planning Unit:

- Collection and analysis of all statistical data within the education sector on a timely bases.
- Sharing of statistical data with OECS countries and
- Provision of statistical data to all Sections of the Ministry and the Public.

The Committee also recommended that the Planning Unit should be redesignated as the Planning

and Statistics Unit. Furthermore, the Planning Unit has started playing a key role in the formulation and evaluation of performance based budgeting for the education sector.

In view of the above developments, the Consultants propose that the Planning Unit should be called the Planning, Budgeting and Statistics Unit (PBSU) to reflect its new role and functions.

Annex 3 gives the description of the proposed Unit in terms of the following:

- The role and functions of the Unit
- The new organizational structure of the Unit.
- The manning table of the Unit.
- The functions and responsibilities of:
    - Research Officer - Research and Policy Analysis
    - Education Officer - Planning and Budgeting
    - Statistics / Assistant Statistician

It is recommended that the Ministry should incorporate the above mentioned changes in its new reorganization plan.

Expanding the Scope of Educational Statistical Digest

Under the present EMIS scheme, schools and institution provide information only on students, teachers and facilities. Because of the limited information provided by the institutions, the scope of current Educational Statistical Digest does not provide sufficient information on other related variables like school going population, the educational budgets, costs, GNP etc.

In view of the above, ***the Consultants recommend that the scope of the Digest should be considerably expanded by including data on all educational planning parameters so that it can be used as an effective tool for management of educational system/institutions.***

The proposed structure of the new Educational Statistical Digest is given below:

- Organicgrams of the Educational System and the Ministry
- Geographical Network of Schools/Institutions
- Demographic data on School going Population.
- Current Statistics by Districts on:
    - Pre School Education
    - Primary Education
    - Secondary Education
    - Tertiary Level Education
    - Adult and Continuing Education
- Rates, Ratios and Indices with respect to the following:
    - Educational Institutions.
    - Pupils / Students.
    - Enrollment by Age.
    - Teaching and Non teaching Staff
    - Education Ministry Staff
    - Education Budget and GNP
    - Education Capital Budget
- International Trends (Rates, Ratios and Indices)
- Projections of:
    - Enrollment
    - Teachers
    - Facilities

- Expenditure

The Digest should present data with the help of graphs, charts and other statistical tools.

Broad-based Educational Management Information System

The flow chart and a user guide for data entry and processing for the current EMIS system are given in *Annex 4.*

It is observed from Annex 4 that the present EMIS system does not allow more than one user to have an access to the data at the same time. Therefore, there is a need to develop an enhanced EMIS system using a client / server architecture so that the data is easily accessible by multiple users at the same time. This has become more important because the Ministry has recently decided to computerize all its operations and built networking system for sharing information between and within departments. The group discussions on the two working documents prepared by the Consultants and the Manager, MIS held on March 30, 1998 may be seen in the Minutes of the Meeting given at *Annex 5.*

Training Workshops on Data Needs

A two-day **Workshop on Data Needs for Educational Planning** was organized on 6th and 7th April 1998. The Workshop was attended by the Principals of all Secondary Schools and four selected Primary Schools. List of participants is given at *Annex 6.* This was followed by a one day **Workshop** on April 8, 1998 for all Education Officers of the Ministry. The list of participant is given at *Annex 7.*

The participants of the two workshop discussed the following three documents produced by the Consultants:

- **Data Needs for Planning, Policy Analysis and Performance based budgeting for**

Education sector in St. Lucia (*Annex 8).*

- **Manual on Computation of Selected Education Planning Parameters: Rates, Ratios and Indices (*Annex 9).***
- Proposal on Development of Educational Planning and Management Information System (EPMIS) (*Annex 10).*

Chapter 2

Organigram and Functions of Planning, Budgeting and Statistics Unit

…

THE ROLE AND FUNCTIONS OF THE UNIT

Within the framework of the new reorganization plan of the Ministry of Education, Human Resource Development, Youth and Sports the role and functions of the Planning Unit have been expanded. The key functions of the Unit are given as:

- The principal function of the Unit will be to assist the Ministry in the formulation, implementation and evaluation of annual, medium and long-term educational plans.
- The unit will conduct research studies on cost analysis, drop outs, teacher attrition, staff utilization, school location planning, internal and external efficiency of educational institutions, etc.
- The Unit will prepare norms and standards for effective management of educational institutions and staff deployment.
- The Unit will also now be responsible for collection, collation and presentation of data on institutions, students, teachers, facilities, budgeting and financing of education and other related characteristics.

- The Unit will maintain scientifically designed educational planning and management information system and supply reliable, valid and timely educational data to educational planners and managers, regional and international level organizations and other users of educational data.

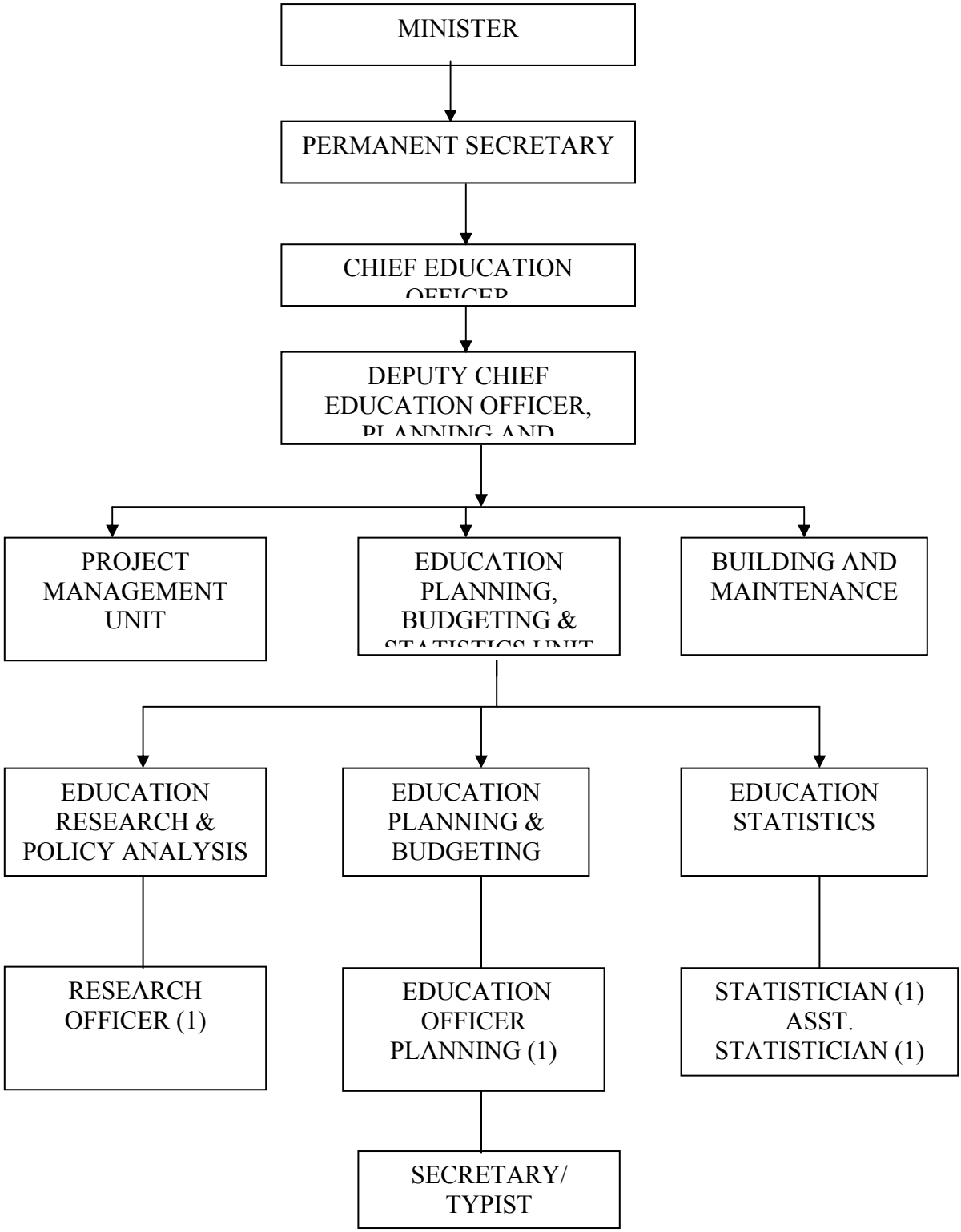
NEW ORGANIZATIONAL STRUCTURE

The new organizational structure of the Planning Unit is given on page 2. The Unit will be headed a Senior Education Officer with a strong background in educational planning and management. The placement of the Unit in relation to overall structure of the Ministry may be seen in the Appendix 1.

Initially, the Unit will have three officers dealing with the following functional areas:

- Research and Policy Analysis
- Planning and Budgeting
- Integrated Management Information System

ORGANIGRAM OF PLANNING, BUDGETING AND STATISTICS UNIT



THE MANNING TABLE

The projected staff strength of the Unit is given below.

SECTION	STAFF	1998	1999	2000
1. Research and Policy Analysis	Research Officer	1	1	1
2. Planning and Budgeting	Senior Education Officer	1	1	1
	Asst. Education Officer		1	1
3. Education Statistics and Data Processing	Statistician	1	1	1
	Asst. Statistician	1	1	1
4. Support Staff	Typist/Secretary	1	1	1

FUNCTIONS AND RESPONSIBILITIES

Research Officer - Research and Policy Analysis

S/he will perform following functions:

- Document and review various educational trends/issues in the OECS and other countries and draw lessons relevant to educational planning in the country
- Conduct research studies on various aspects of internal and external efficiency of educational institutions at primary, secondary and tertiary levels.
- Produce pro-active policy studies on cost reducing, cost sharing and cost saving devices and income generating projects for the consideration of senior education planners, administrators and managers on a regular basis
- Initiate and conduct in-service training courses and workshops on educational policy formulation and analysis
- Carry out any other duty assigned by the Head of the Unit

Education Officer - Planning and Budgeting

S/he will perform the following functions:

- Prepare and present annual, medium and long-term educational plans for the education sector, integrating information on pupils/students, teachers, and non-teaching staff, physical facilities and unit costs
- Assisting heads of institutions in the preparation of institutional level short and long term plans to enable them to develop forward looking and performance oriented annual budgets
- Develop and formulate norms and standards required for the preparation of institutional plans/budget
- Carry out periodic reviews of progress made in the implementation of educational plans/projects based on institutional plans and projects of various divisions/sections of the Ministry
- Collaborate with Ministry of Finance in the preparation of educational annual budgets based on institutional plans and projects of various divisions/sections of the Ministry
- Conduct monitoring and evaluation exercises with respect to selected projects of the Ministry
- Undertake and assist in the rationalization of school network and formulation of educational complexes to improve the deployment of the limited resources of the Government and community
- Conduct and manage workshops and in-service training courses on the use of norms in the formulation of budgets and plans by institutions and by various

sections of the Ministry

- Any other duty assigned by the Head of the Unit

Statistician/Assistant Statistician

S/he will perform the following functions:

- Design and operate an integrated Educational Management Information System (EMIS) for the entire education system
- Development and modify formats and questionnaires to be used for collection of data and information from institutions
- Compute and publish on a regular basis changes in educational policy parameters (rate, ratios and indices) reflecting the educational progress and disparities.
- Publish educational data and information for use by practical administrators in the education system.
- Produce/maintain up-to-date data/information on institutions, students, teachers, non-teaching staff, expenditure/cost and other related characteristics.
- Conduct in-service training courses/workshops on the collection and use of education statistics
- Maintain up-to-date documentation on education statistics of OECS and other countries
- Any other duty assigned by the Head of the Unit

Chapter 3

EMIS: Flow chart and User Guide

Chapter 4

Data Needs for Planning, Policy Analysis and Performance Based Budgeting for Education Sector in St. Lucia

…

The Genealogy of Educational Reform

The genealogy of the present educational reform in OECS member countries can be traced to the recommendations and concerns expressed by the Education Reform Group in its *Report on Foundation For The Future: OECS Education Reform Strategy*. At present, the OECS countries are at various stages of implementation of the Educational Reform Program. This Reform Program has generated a lot of demand for various kinds of data. Particularly, the education policy makers and planners require urgently *reliable and valid* data on institutions, students, teachers, facilities and finances on a regular basis for *diagnostic analysis and forecasting* purposes.

Education Reform in St. Lucia

The *locus and focus* of the Reform Program in St. Lucia is given in the *Staff Appraisal Report on the Basic Education Reform Project*. Within the framework of the Project, profound changes are being brought about in the *structure and content* of the education system to make it more *effective, efficient and accessible* to all sections of the population.

Broadening the Scope of the Planning Unit

It is gratifying to note that the Ministry of Education through its Project Management Unit has set into motion a series of actions to establish a full-fledged Educational Planning Unit. The Unit will also now be responsible for development and maintenance of a strong databases required for the preparation of well integrated educational plans at *national, district and institutional* levels.

Under the new Re-organization Plan of the Ministry, the principal functions of the Planning Unit will include the following:

- The preparation, implementation and review of short- and long-term educational plans for the country.
- The preparation and implementation of performance based budget for the Ministry.
- The collection, collation and presentation of data in a usable form on a regular basis with respect to *institutions, students, teachers, facilities, finances and other related variables.*

In support of data management objective of the Unit, in the present document an attempt is made to identify the critical data needs required for the preparation, implementation and evaluation of educational plans/budgets at various levels.

Present Status of Educational Data

The Ministry has brought out its maiden issue of *Statistical Digest, 1994 – 1995* in March 1997 based on information collected from the institutions with the help of *EMIS Formats* designed by the OECS.

The Digest provides limited data with respect to a few characteristics of students and teachers only. There is a very little information on facilities, costs and finances. Furthermore, the data has

not been presented in a form so that it can be readily utilized for policy analysis and educational planning. Therefore, in the present exercise an effort has also been made to give methods and techniques for presentation of data in the usable form.

Three Basic Approaches to Educational Planning

The nature and scope of data-needs will be determined by the choice of approach to the educational planning that the Ministry decides to make. There are three basic approaches to Educational Planning:

- **Social Demand Approach**
- **Manpower Requirements Approach**
- **Rates of Return Approach**

The scope and limitations of each approach to educational planning are briefly discussed in the next three subsections.

Social Demand Approach

The **Social Demand Approach** involves use of the *Flow Model Technique* in carrying forward the number of children of school admission age from grade to grade with the help of appropriate flow rates - promotion rate, dropout rate and stagnation rate. The three major steps involved in the application of the technique are briefly set out as:

The *first step* in the application of this technique is to project population by gender for relevant school admission age. The current and future size of school admission age population for a given area (country/district/parish) will be determined by the inter-play of the three following factors:

- **Birth Rate**
- **Death Rate**
- **Net Migration Rate**

The *second step* is to determine past trends and future projections of the following flow rates from grade to grade:

- **Promotion Rate**
- **Drop out Rate**
- **Stagnation Rate**

The *third step* is to estimate future **transition rates** for students moving from one stage to the next stage of education.

It is clear from the above presentation that the social demand approach is a very simple and straightforward method for projecting the growth of an educational system over a period of time. Because of these reasons, this approach has been used by the most of the developing countries

including OECS member states. However, the relevance of the social demand approach to educational planning has been questioned because it does not take into account future changes in the demand for educated manpower. Therefore, this approach has limited utility in the context of St. Lucia, where the government is anxious to link the educational system very closely with the changing employment market for school graduates.

In the event that this approach is applied to educational planning, the Unit has to maintain data not only on the characteristics of the educational system but also on the dynamics of population in terms of its structure, composition and distribution.

Manpower Requirements Approach

The **Manpower Requirements Approach** to educational planning attempts to link admission policies of the educational and training institutions to the current and future manpower demands of the country. The content and duration of educational programs are structured and designed to meet requirements of the *emerging and growing* occupational groups in the economy. This approach involves the following steps:

Step 1: Projection of **Gross Domestic Product (GDP)** by sectors/industrial groups.

Step 2: Computation of **labor/output ratios** by sectors/industrial groups.

Step 3: Projection of employment by occupational families by applying labor output ratios (*Step 2)* to the projected Gross Domestic Product by sectors/industrial groups (*Step 1)*.

Step 4: Computation of **educational mix** of employment by occupational families.

Step 5: Projection of manpower by educational levels with the help of *Steps 3* and *4*.

Step 6: Translation of manpower demand given in *Step 5* in terms of **admission policies** of education and training institutions.

It is clear from the preceding steps that this approach attempts to build strong linkages between the education system, employment market and production patterns of goods and services in the economy. Therefore, the Educational Planning Unit has to maintain databases on the changes in employment market of school graduates and production patterns of different segments of the national economy.

It is note worthy that the individual student data currently being collected by OECS for tertiary

level institutions is very useful for carrying out **tracer studies of graduates**. These studies will help us to find out the strengths and weaknesses of our curriculum programs and gaps in skills imparted to these graduates.

Before we conclude our discussions on the application of the manpower requirement approach to educational planning, some of the weaknesses of the technique are mentioned below:

- The manpower approach is based on the principle of production engineering and does not link together suppliers and demanders of manpower through the market price mechanism.
- It is difficult to project changes in productivity of labor and its impact in manpower demand.
- Experience has shown that most of the manpower projections give an under estimate of actual market demand for manpower.

Rates of Return Approach

The **Rates of Return Approach** is used to evaluate investment options by setting costs of a project (a student) against the monetary benefits it generates during its lifetime. In the field of education, the rates of return have been computed for a number of countries for different levels and types of education. The returns from education are computed by adding together lifetime earnings of the beneficiary of education. However, these returns are adjusted for non-education earnings determining factors, such as, innate ability, gender, socio-economic status etc. The rates of return have been calculated both from private and social points of view.

The application of the approach involves the following steps:

Step 1: The social costs of education include the following items:

- **Teaching costs**

- **Non teaching costs**
- **Capital costs of building, furniture and equipment**
- **Costs of text books and materials used**
- **Earning foregone by the students**

Step 2: The private costs of education incurred by a student and his parent is estimated by adding together the following items:

- **Tuition cost**
- **Cost of text books and materials**
- **Earning foregone by the students**

Step 3: The **private returns** from investment in education are calculated with the help of lifetime earnings after tax received by the beneficiary (student). However, the **social returns** are based on earnings before tax.

Step 4: The private unit costs are evaluated in relation to the private returns with the help of *internal rate of return technique*. Similarly, the social rates of return are calculated by relating the social unit costs to social returns.

If the social rate of returns from the investment in the primary education is higher than that of tertiary education, then the government will be wiser to invest more in the primary education than in the tertiary education. In fact, in most of the developing countries, several studies have revealed that the rates of return from the investment in the primary education are higher than those from the tertiary education.

Similarly, if the parents find that the rate of return from investment in engineering education is

higher than the rate of return from the medical education, they will be more rational to invest in engineering education rather than spend on medical education of their children.

Before we end our discussion, it will be necessary to mention that opponents of the rates of return approach have questioned its validity in relation to educational planning in developing countries. They argue that it is impossible to compute **non-monetary returns** from investment in education. However, this weakness of the approach has been overcome by some of the scholars by estimating indirectly the non-monetary benefits from investment in education.

Despite various conceptual and measurement problems involved in assessing the returns to the investment in education, it is recommended that the Planning Unit should concentrate on carrying out **studies on unit cost of education** on a regular basis. It will be very helpful to maintain databases on changes in unit costs by levels and types of education over a period of time. These studies will help in the rationalization of allocation of resources and in carrying out cost effectiveness analysis of educational programs and projects.

Combination of Approaches to Education Planning

It is recommended that the Education Planning Unit should use a combination of all of the three above-mentioned approaches to education planning for St. Lucia. The Social Demand Approach can be used for projecting growth in enrollment in primary and secondary schools and the Manpower Demand Approach can be used for planning the growth of tertiary level institutions. The rates of return analysis or cost-effectiveness analysis can be used in selection of alternative projects and activities within given programs.

Projecting the Demand for Teachers

The next logical step to the projection of enrollment is to estimate the demand for teachers to guide the teacher recruitment policy of the government. The demand for teachers in a given year is

determined by two key factors known as:

a. **Teacher Replacement demand due to retirement, withdrawal and deaths.**
b. **Teacher demand due to expansion in the educational system.**

Therefore, the Planning Unit has to maintain data on retirements, withdrawals from the teaching profession, deaths etc. to enable the estimation of **replacement component** of teacher demands.

The demand for teachers due to **expansion** in the educational system is influenced by several factors, such as, student-teacher ratio, average class size, average number of periods taught by a teacher, average salary per teacher, subject specialization etc. This can be demonstrated with the help of the model given below:

$$\text{Total Teacher Demand} = \frac{\text{Total Enrollment}}{\text{Student-Teacher Ratio}}$$

$$= \frac{\text{Enrollment} \times \text{Teachers} \times \text{No. of periods taught} \times \text{No. of Classes taught}}{}$$

$$\text{Enrollment} \times \text{No. of periods taught} \times \text{No. of Classes taught}$$

$$= \text{Enrollment} \times \frac{\text{No. of periods taught}}{\text{No. of Classes taught}} \times \frac{\text{Teachers}}{\text{No. of periods taught}} \times \frac{\text{No. of Classes taught}}{\text{Enrollment}}$$

$$= \text{Enrollment} \times \frac{\text{Average No. of periods per class}}{\text{Average load per teacher} \times \text{Average class size}}$$

It is clear from the above model that the demand for teachers will increase if we increase either the enrollment or the average number of periods taught per class or both. But the demand for teaches will decrease if we either increase the average load per teacher or average class size or both.

This clearly shows that the teacher demand is not only determined by enrollment and teacher-student ratios but also largely by factors, such as, average class size, average load per teacher etc. Therefore, the Planning Unit has to maintain the databases on following key factors influencing demand for teachers:

- **Average number of periods per class**
- **Average load per teacher**
- **Average class size**

Cost Analysis of Education

The **Number One Problem** of all developing countries today is to find out ways and means for stretching the use of limited resources to get more and better education. Therefore, any project/activity undertaken to improve education quality or opportunity without prior examination of its cost consequences can easily prove self-defeating. Again, cost analysis has little meaning until it is set against educational benefits and productivity. In other words, we always have to remember that the success of our institutional level management will depend on the extent to which our scarce resources are used to improve overall efficiency and productivity of our educational outputs. Therefore, an appropriate choice of various factors influencing the cost of education will help in the rational use of our scarce resources. This is demonstrated with the use of the following cost model:

$$\text{Teacher Cost Per Student} = \frac{\text{Total Teacher Salaries}}{\text{Enrollment}}$$

$$= \frac{\text{Total Teacher Salaries} \div \text{Total No. of Teachers}}{\text{Enrollment} \div \text{Total No. of Teachers}}$$

$$= \frac{\text{Average Salary per Teacher}}{\text{Student-Teacher Ratio}}$$

It can be clearly seen that by increasing the **Student-Teacher Ratio**, we can reduce teacher cost per student and any increase in the **Average Salary per Teacher** will have direct influence on the Teacher Cost per Student. For this reason, the *Basic Education Project Report* insists that the Student-Teacher Ratio should be increased from 17 to 20 so that the teacher resources can be fully

utilized in the secondary schools.

Because of the economies of scale, it is observed that the unit cost per student tends to be lower in large size schools than in small size schools. In other words, there is an inverse relationship between the **size of school** and **unit cost per student**. **Therefore, the Planning Unit should carry out cost studies to find out an optimum size of a school. This will help in developing norms for school location planning and performance based budgeting at a school level.**

Budgetary Allocations to Education

The **Percentage Share of the Government Budget** allocated to the Education indicates the priority government attaches to the education sector in its overall scheme of allocation of resources. Similarly, the **Percentage Distribution of Education Budget** between the different level of education shows the preferences and priorities of the Ministry of Education in relation to different types of education. Therefore, it is important that the Planning Unit maintains databases on the **Public Spending** (current and capital) by levels of education and by types of programs. This will help to monitor the trends in allocation of resources between various levels and types of education.

Performance Based Budgeting and Output Targets

The Planning Unit has recently prepared a draft performance based budget for the Ministry of Education. A quick perusal of the document revealed that the budget does not show the quantitative targets to be achieved by the various program implementing units. Therefore, the Unit should develop quantitative targets to be achieved at the end of each activity/project/program. This will help the Ministry to evaluate and monitor the progress of work done by various program-implementing units.

Facilities Analysis

This is one of the weakest areas of information and the Planning Unit has to provide leadership in collecting data on the use of building physical facilities both in terms of **space and time**. It is recommended that all schools should maintain data on space and time utilization rates for different rooms and laboratories. This can be done with the help of the following formulae:

$$\text{Space Utilization Rate(SUR)} = \frac{\text{Actual use}}{\text{Actual Capacity}} \times 100$$

Example:

If a classroom has 40 seats and we find only 30 seats are utilized, the space utilization rate will be as follows:

$$SUR = \frac{30}{40} \times 100 = 75\%$$

Again, if the classroom can be utilized for 10 hours a day and it is utilized only for 4 hours a day, the Time Utilization Rate (TUR) can be calculated as follows:

$$TUR = \frac{4}{10} \times 100 = 40\%$$

In order to get a realistic picture of utilization of the room, one has to calculate Global Utilization Rate (GUR) by combining SUR and TUR as illustrated below:

$$GUR = SUR \times TUR = \frac{30 \times 4}{40 \times 10} \times 100 = 30\ \%$$

The Principals can use the School **Timetable** as a management tool by linking together the best possible way the **physical facilities, teachers' time, students' time and curriculum programs** can be utilized so that all school resources are utilized in an efficient and effective manner.

Building of Norms and Standards

One of the important functions of the Planning Unit should be to evolve, review and adopt norms

and standards for allocation of resources to institutions. Some of the norms and standards to be considered for budgetary purposes are listed below:

- **Average Catchment Area:** Each institution should maintain a reasonable catchment area so that students can commute the distance between their homes and their schools in a reasonable time period. The formula for circular catchment area is given below:

$$R = \sqrt{A \div \pi}$$

Where R is the Radius of the catchment area around the school, A is the area served by the school and $\pi = (22 \div 7)$.

- **Wastage Rates:** The institution should maintain data on drop out rates, stagnation rates and promotion rates for each class by gender to monitor the level of wastage of educational resources.
- **Attendance Rate:** Every teacher should maintain and monitor attendance data to improve class participation by their students.
- **Average Class Size:** Size of the class should not be allowed to fall below a certain standard norm because small size classes tend to be most expensive.
- **Percentage of Trained Teachers:** The percentage of trained teachers in all institutions should be continuously upgraded in order to enhance the quality of teaching at the classroom level.
- **Student-Teacher Ratio:** This is one of key indicators for utilization of services of teachers. The institutional heads should ensure that the teaching staff is fully utilized by maintaining reasonably high student-teacher ratios at at all the times.
- **Average Teaching Load per Teacher:** The number of periods taught by a teacher

should be maintained at a certain reasonable level so that services of teachers are fully utilized.

- **Physical Facility Utilization Rates:** With the help of an efficient and effective timetable, the space and time utilization rates can be maintained at optimal levels for different classrooms in the schools.
- **School library Norms:** The utilization rates for use of library resources should be maintained so that students and teachers can use limited resources in an efficient manner.

- **Supplies to Teachers and Students:** Appropriate norms for teaching and learning resources for students and teachers should be maintained by the institutions for each class/grade.
- **Unit Cost of Education**: At present, the unit costs of education per student vary considerably between institutions. These variations are to be evened out over a period of time.
- **Average Salary per Teacher**: An average salary per teacher is determined by factors like age/experience, training etc. Therefore, this indicator should be considered for bringing uniformity in the quality of instructions between different institutions.
- **Percentage Share of Current Expenditure on Non-Teaching Staff:** It is important that the percentage share of current expenditure on non-teaching staff at the institutional level should be kept as low as possible. The savings arising from the reduction in expenditure on non-teaching staff should be spent to improve teaching and learning resources of schools.

- **Percentage Budget on Maintenance:** Each institution should maintain a given percentage of budgets for maintenance of physical facilities, furniture and equipment to increase the life span of physical assets of the school.

- **Tracer Studies:** The institution should maintain follow up data on the students who graduate annually.
- **Examination Results:** The Institution head should maintain and monitor examination results and take necessary measures to enhance their performance every year.

The Planning Unit should maintain information on the above mentioned norms and standards for each institution. This will help the Unit to implement of some of its key functions listed below:

- To review and evaluate implementation of institution level norms and performance based budgets.
- To improve the supervision of overall organizational climate of the institutions.
- To rationalize the institutional network based on well-defined school mapping and school location planning norms.

The next working document *on Manual on Computation of Planning Parameters: Rates, Ratios and Indices*, gives a selected list of key indicators needed for diagnostic analysis and forecasting purposes.

Chapter 5

Manual on Computation of Selected Education Planning Parameters: Rates, Ratios and Indices

…

Educational Access Indicators

Average Catchment Area (ACA)

Each institution should maintain a reasonable catchment area so that students can commute the distance between their homes and their schools in a reasonable time period. The radius (R) of an Average Catchment Area of a primary school gives information on the availability of educational facilities in a district or in its sub-divisions. The formula for computing radius for a circular catchment area is given below:

$$R = \sqrt{A \div \pi}$$

Where R is the Radius of the catchment area covered by the school, A is the area served by the school and $\pi = (22 \div 7)$.

The results based on ACA can be used for rationalization of school network and institution location planning purposes.

Gross Enrollment Rate (GER)

The GER gives information on the participation of a specific school-going age group population of a given area (Country/district/parish) at a given level of education. The GER rates are computed for Primary, Secondary and Tertiary Levels of education.

$$\text{GER at Primary level} = \frac{\text{Enrollment at Primary level}}{\text{Primary school-going age population}} \times 100$$

The rate for primary level of education should be calculated for St. Lucia and its six educational districts separately. This will help in assessing the extent of disparities in the participation of the school-going population in primary education between districts at a given point in time.

The GERs for the three levels of education in St. Lucia should also be presented along with GERs of other OECS countries to give an idea of the educational progress in St. Lucia in relation to neighboring territories.

Net Enrollment Rate (NER)

In order to compute Net Enrollment Rate for a specific level of education, the enrollment has to be adjusted for the over- and under-age children attending that level of education and relate it to the corresponding school-going population. The NER is computed as:

$$\text{NER at Primary level} = \frac{\text{Enrollment at Primary level adjusted for over- and under-age population enrolled in the primary schools}}{\text{Primary school-going age population}} \times 100$$

Female Participation Rate (FPR)

The rate is computed to find out the disparity in gender participation in different levels and types of education.

$$\text{FPR at Primary level} = \frac{\text{Female Enrollment at Primary level}}{\text{Total Enrollment at Primary Level}} \times 100$$

The FPRs rate can be computed for secondary and tertiary levels of education.

Transition Rate

It is calculated by relating the number of graduates who join the next level of education in a given year to those who graduated from the lower level in the previous year. The transition rates should be calculated for males and females separately to get an accurate picture of differences in access to

the higher levels of education.

$$\text{Transition Rate From primary} = \frac{\text{Number of students who join the first year of secondary school in t year.}}{\text{Total number of who graduate from the primary schools in the t-1 year.}} \times 100$$

Student Flow Indicators

Drop-out Rate

It is calculated by following a cohort of students who join a given class in a given year but drop out from the school system.

$$\text{Drop-out Rate} = \frac{\text{Number of drop-out students from a given class In a given year}}{\text{Total number of student enrolled in a given class at the beginning of the year}} \times 100$$

Repeater Rate

It is calculated by following a cohort of students who join a given class in a given year but repeat in the same class in the subsequent year.

$$\text{Repeater Rate} = \frac{\text{Number of repeaters from a cohort of students who repeat in the subsequent year in the same class}}{\text{Total number of student enrolled in a given class at the beginning of the year}} \times 100$$

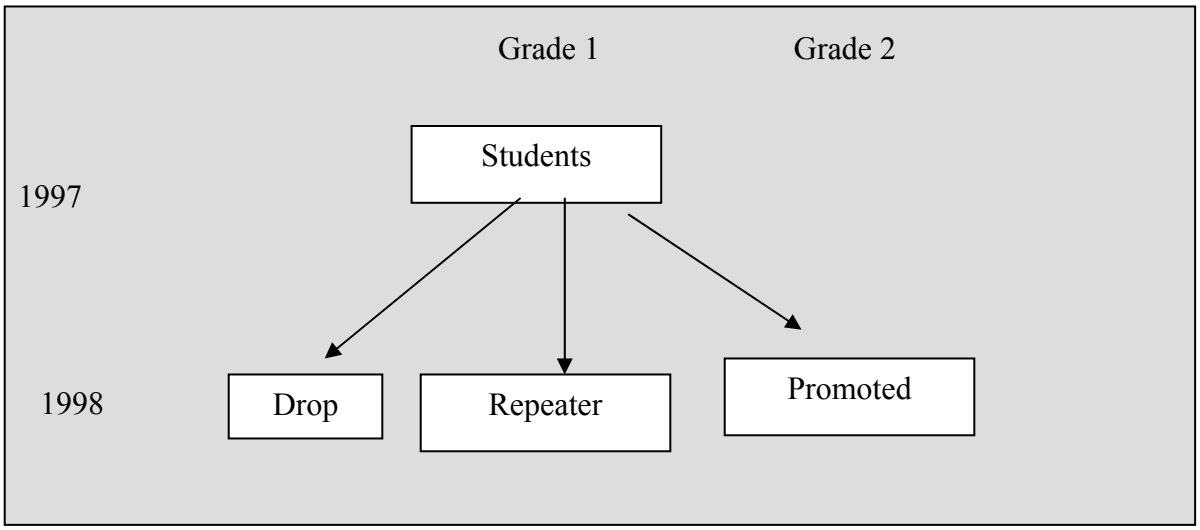
Promotion Rate

It is calculated by following a cohort of students who join a given class in a given year and move to

the next class the subsequent year.

$$\text{Promotion Rate} = \frac{\text{Number of students who move to the next class in the subsequent year}}{\text{Total number of student enrolled in a given class at the beginning of the year}} \times 100$$

The relationship between drop-out, repeater and promotion rates is illustrated with the help of flow diagram given below:



$$\text{Dropout Rate} = \frac{50}{1000} \times 100 = 5\%$$

$$\text{Repeater Rate} = \frac{100}{1000} \times 100 = 10\ \%$$

$$\text{Promotion Rate} = \frac{850}{1000} \times 100 = 85\%$$

Total Enrollment = Drop outs + Repeaters + Promoted students

Total Enrollment = 50 + 100 + 850 = 1000

School Resource Utilization Indicators

Excess Institutional Capacity Rate

It is calculated by relating total enrollment of a school to its actual capacity as

$$\text{Excess School Capacity Rate} = 100 - \frac{\text{Actual Enrollment of a school}}{\text{Estimated Capacity of the school}} \times 100$$

Average Size of the School

It is generally observed that large sized schools tend to use resources more effectively than the small sized schools. Therefore, the average size of school should be calculated for each district to get an idea about the level of the utilization of school resources in the district. This is calculated by dividing total enrollment of the district by the total number of schools.

$$\text{Average Size of School} = \frac{\text{Total Enrollment in a district}}{\text{Total Number of Schools in a district}}$$

Average Class Size

In order to use school resources more efficiently, the school management should ensure to maintain large size classes. It is calculated by dividing total enrollment by the total number of classes in a district.

$$\text{Average Size of a Class} = \frac{\text{Total Enrollment in a district}}{\text{Total Number of Classes in a district}}$$

Average Stream Size

Like the size of a class, the size of a stream also influences the use of school resources. It is calculated by dividing total enrollment by the total number of streams in a district.

$$\text{Average Stream size} = \frac{\text{Total Enrollment in a district}}{\text{Total Number of Streams in a district}}$$

Physical Facility Utilization Indicators

All school principals should maintain data on space and time utilization rates for different rooms and laboratories. They should use the Timetable as a management tool for effective utilization of their limited physical facilities by linking together effectively physical facilities, teachers' time, students' time and the curriculum program.

Space Utilization Rate (SUR)

The SUR for a given class room is calculated with the help of following formula:

$$SUR = \frac{\text{Actual No. of seats utilized In a room}}{\text{Total No. available in the room}} \times 100$$

Example: If a classroom has 40 seats and only 30 seats are occupied by the student, the space utilization rate is as follows:

$$SUR = \frac{30}{40} \times 100 = 75\%$$

Time Utilization Rate (TUR)

The TUR for a given class room is calculated with the help of following formula:

$$TUR = \frac{\text{Actual number of periods a classroom is used}}{\text{Total number of periods a classroom can be used}} \times 100$$

Example: If a class room can be utilized for 10 periods a day but it is actually used only for 4 periods a day, the Time Utilization Rate (TUR) can be calculated as follows:

$$TUR = \frac{4}{10} \times 100 = 40\%$$

Global Utilization Rate (GUR)

In order to get a correct picture of utilization of the room both in terms of space and time, one has to calculate the Global Utilization Rate (GUR). This done by combining SUR and TUR as illustrated below:

$$GUR = SUR \times TUR$$

Example:

$$GUR = \frac{30 \times 4}{40 \times 10} \times 100 = 30\ \%$$

Teacher Utilization Indicators

Average Student-Teacher Ratio

The average Student-Teacher ratio has a great influence on the unit cost of education. Therefore, a suitable choice of the student-teacher ratio is very important in the overall scheme of allocation of resources at the school level. It is calculated as:

$$\text{Average Student-Teacher Ratio} = \frac{\text{Total Enrollment in a school/district}}{\text{Total Numbers of teacher in a school/district}}$$

Average Teaching load per Teacher

Greater the teaching load per teacher, higher is the level of utilization of teacher resources in an institution. It is calculated as:

$$\text{Average Teaching load Per Teacher} = \frac{\text{Total number of periods taught in a school/district}}{\text{Total numbers of teachers in the school/district}}$$

Cost of Education Indicators

The following unit cost indicators can serve as a useful tool for institutional level planning and norm based budgeting.

Institutional Level Unit Cost per Student

This is calculated by dividing total institutional level cost by the total number of students enrollment as:

$$\text{Unit Cost per Student} = \frac{\text{Total institutional level cost}}{\text{Total enrollment}}$$

Where, total institutional level Cost = Teacher Cost + Non-Teacher Cost + Scholarships + Capital Cost – Student Fees

Private Unit Cost of Education

This is calculated by dividing total private cost of education by the number of students:

$$\text{Private Unit Cost of Education} = \frac{\text{Total private cost}}{\text{Total No. of Students}}$$

Where, total private cost = Tuition Cost + Non-Tuition Cost + Earnings Forgone - Scholarship

Unit Cost Per Class

This is calculated by dividing the total institutional level cost by the total number of Classes as:

$$\text{Unit Cost per Class} = \frac{\text{Total institutional level cost}}{\text{Total No. of Classes}}$$

Average Salary per Teacher

This is calculated by dividing total teacher salaries by the total number of teachers in the school as:

$$\text{Average Salary per Teacher} = \frac{\text{Total Teacher salaries}}{\text{Total No. of Teachers}}$$

Unit Cost per Period

This is calculated by dividing total teacher cost by the total number of teaching periods in a school as:

$$\text{Unit Cost per Period} = \frac{\text{Total Teacher cost}}{}$$

Total Number of teaching Hours

Unit Cost per School

This is calculated by dividing total educational cost in a district by the total number of students as:

$$\text{Unit Cost per School} = \frac{\text{Total educational cost in a district}}{\text{Total number of students}}$$

Education Budgetary Indicators

The following indicators help in assessing the importance attached to the education sector in the overall scheme of allocation of resources by the government and by the society as a whole.

Percentage of Public Current Expenditure on Education

The percentage of current public expenditure allocated to education is calculated as:

$$\text{Percentage of Public Expenditure on education} = \frac{\text{Current expenditure on education}}{\text{Total public current expenditure}} \times 100$$

Percentage of Public Capital Expenditure on Education

The percentage of Capital public expenditure allocated to education is calculated as:

$$\text{Percentage of Public Expenditure on education} = \frac{\text{Capital expenditure on education}}{\text{Total public Capital expenditure}} \times 100$$

Percentage of Education Expenditure in Relation to the Gross Domestic Product (GNP)

The percentage of public expenditure on education in relation to the GNP is calculated as:

$$\text{Percentage of GNP Spent on education} = \frac{\text{Public expenditure on education}}{\text{GNP}} \times 100$$

Institutional Output Indicators

Percentage of Students Passing the Common Entrance Examination

The percentage of Students passing Common Entrance Examination in relation to those who appeared in the examination in the given year is calculated as:

$$\text{Percentage of Students passing Exam} = \frac{\text{No. of Students who passed the exam}}{\text{No. of Students who appeared for the exam}} \times 100$$

Percentage of Students Passing the Caribbean Examination Council

The percentage of Students passing Caribbean Examination Council in relation to those who appeared in the examination in the given year is calculated as:

$$\text{Percentage of Students passing Exam} = \frac{\text{No. of Students who passed the exam}}{\text{No. of Students who appeared for the exam}} \times 100$$

Chapter 6

LOCAL AREA NETWORK

PROJECT PROPOSAL

1. BACKGROUND

One of the objectives under the **Sector Planning and Institutional Strengthening**[1] component of the Basic Education Reform Project (BERP) is to develop an integrated database system. This system is intended to serve in improving sector planning, and in strengthening general administration in the education system.

In the effort to fulfill the above objective, the following was done:

- A Data Management Unit was established to collect, analyze and disseminate statistical information on various aspects of the education sector.
- A few desktop computers and printers were purchased and distributed to some units in the Ministry.
- Data Management consultants were commissioned to assist in establishing an education planning database application for the Ministry, train staff in its use and prepare user manuals.

Initially, it was proposed that a single user education planning database application be developed. It was also suggested that this application be based in the Data Management Unit, which will be responsible for providing other units with the relevant information. With this system, however, the information required by decision making will not be readily available to education officers, and the

[1] Refer to Basic Education Reform Project - Project Implementation Manual, Project Summary, Page 1.

process of retrieval of such information will be inefficient.

Two options for making the required information easily accessible to education officers for decision making are as follows.

Option I: Install the single user education planning database application on each desktop computer.

Option II: Implement a local area network (LAN) and develop a client server education planning database application.

Option I will result in the following problems among others.

- Each computer must have adequate hard disk capacity for storing the education planning database, its application[2], and other applications that will be required by each officer. It is not cost effective to continue to purchase computers with large hard disks in order to duplicate the storage of data.
- There will be duplication of effort in updating the education planning database because several copies of this database will have to be updated.
- It will not be possible to synchronize the update of the databases on each desktop. Consequently, this leaves room for inconsistencies in the data available on all the computers.

In light of the problems associated with option I, it is proposed that a LAN be implemented to link all units within the Ministry. The LAN will be implemented in two phases. The first phase will cover offices for which the development of information systems can be funded under the BERP,

[2] The existing Education Management Information System and associated database, which will be replaced by the proposed education planning database application, requires approximately 400MB of hard disk space.

viz.:

- The Examination Unit
- Data Management Unit
- Project Management Unit
- Planning Unit
- The offices of the Chief Education Officer and the Deputy Chief Education Officer
- The offices of the Education Officer Primary and the Education Officer Secondary
- The offices of District Education Officers 1 and 4
- The Secretary Pool for Education Officers

The second phase of the LAN project will include the remaining offices in the Ministry (or the offices excluded from BERP). This phase will be partially funded by Cable & Wireless under a cooperation agreement with the Ministry. The remainder of the funds required for this phase will come from local revenue.

This proposal focuses on the first phase of the LAN implementation. Appendix 1 illustrates a preliminary design for the segment of the LAN that will be completed in phase 1.

1. RATIONALE

The implementation of the proposed LAN, and the training of users in basic networking concepts as well as in the effective use of various computer applications (including the education planning database application), will assist in accomplishing the following.

- Improving the sharing and exchange of information among the above-named units and offices.

- Facilitating the sharing of resources such as printers, hard disk drives, etc.
- Upgrading the skills of computer users.

2. Project Benefits

One of the principal benefits of implementing the proposed local area network is that it allows easy access to information required for education planning and development. This information can influence efficient and effective decision making at various levels in the Ministry.

The proposed local area network will also make it possible to share expensive resources such as printers and hard-drives. Thus it will not be necessary to purchase a printer for almost every computer as has been done in the past. This will not only result in a cost saving in the acquisition of printers, but also in maintenance, as eventually there will be fewer printers. Cost savings will also be realized in the purchasing of printer accessories such as cartridges and ribbons.

With the sharing of files in electronic form and the extensive use of electronic mail enabled by the local area network, the volume of paper consumed by the units under consideration will decrease. Consequently, the overall cost of paper for these units will be reduced.

There will be an improvement in communication and exchange of information among units. Remote offices (such as CAMDU and District Education Offices) will have dial-up access to the network and will therefore be able to share and exchange information with the units of the main building. The local area network, therefore, provides the necessary infrastructure for integrating the operations of individual units in order to deliver services to schools and to the public in a more efficient manner.

The local area network will also enable the Data Management Unit to address user problems more efficiently. It will be possible to broadcast valuable information to assist users in being more

proficient in the use of various applications.

3. PROJECT COSTS

The following is an estimate of the cost of successfully completing this project:

Consulting fees

Secure consulting services for assisting with the installation of Windows NT **2,000**

Training

Rental of training facilities (w/ 10 computers, white board, etc) for 13.5 hours **2,700**

Software

	Number	**Cost $**
MS Windows NT (10 User License)	1	5,000
Additional client license upgrade	10	900
McAfee Netshield for Windows NT	1	400
McAfee ViruScan for Windows 95	1	400
Total (Software)		**6,700**

Hardware

	Quantity	**Unit Cost ($)**	**Cost($)**
Server(300MHz, 128MB RAM, 9GB HDD)	1	15000	15,000
Network Cards	16	200	3,200

16 Port Hubs	3	1000	3,000
Network Print Devices	1	500	500
High speed line printer	1	5500	5,500
Color printer	1	2200	2,200
32 MB RAM	2	1000	2,000
Network Installation (Cable, RJ 45 jacks, face plates, conduits and labor)	30 runs	300	9,000
Total (Hardware)			**40,400**

Contingency cost (2%)	**1,036**
TOTAL COST:	**$52,836**

4. COSTS BENEFITS ANALYSIS

It is difficult to perform a costs/benefits analysis for information technology projects because the benefits realized cannot be easily quantified. However, based on similar projects undertaken in other government departments (e.g. the Data and Records Section of the Ministry of Personnel), the following are projected tangible results of the proposed LAN:

- 500% increase in the speed of retrieval of information required
- 50% reduction in future purchases of printers and other shareable resources
- 50% reduction in maintenance cost of these resources
- 20% reduction in the consumption and cost of paper
- Elimination of duplicating effort in processing data in the format required by various

individuals

Intangible results include more informed decision-making and improved quality of work produced by employees.

Based on the above analysis, it is reasonable to infer that the potential benefits —both tangible and intangible— that can result from this project are significant enough to justify the estimated monetary investment.

Chapter 7

Educational Planning and Management Information System (EPMIS)

1. Introduction

Since 1994-1995, the Planning Unit of the Ministry of Education has been collecting data from primary and secondary schools and tertiary level institutions with the help of Educational Management Information System (EMIS) formats designed by OECS. The data from the institutions on students, teachers, facilities and expenditures is processed and presented in the Statistical Digest produced by the Data Management Unit.

Based on the experience gained so far, the OECS is planning to revise the data collection formats to make the annual data gathering exercise more effective, efficient and relevent to the educational planning needs of the member states.

Furthermore, the EMIS software has been developed with the help of a single-user spread sheet software development tool, Lotus 1-2-3. It is limited in scope for sharing and manipulating educational planning data for analysis purposes by its users.

On the request of the Head of the MIS unit, a proposal has been prepared for discussion to enable the Planning Unit to introduce a client/server based Educational Planning and Management Information System (EPMIS) software. The new software is to help the Planning Unit to make its data available to the users within and outside the Ministry. This will also help the Education Officers have access to the data from other Units and agencies.

It is also believed that the Government of St. Lucia has decided to computerize the administrative

work of all the public service departments. Within the framework of this decision, that Head of the MIS has initiated steps to network some of the Units closely connected with the work of the Educational Planning Unit.

2. Objectives

- To provide a user-friendly interface for data entry and data analysis.
- To make the education data accessible to users within and outside of the Ministry of Education.
- To make the education data available to more than one user at the same time.
- To make analysis of educational data for planning purposes more flexible and customizeable.

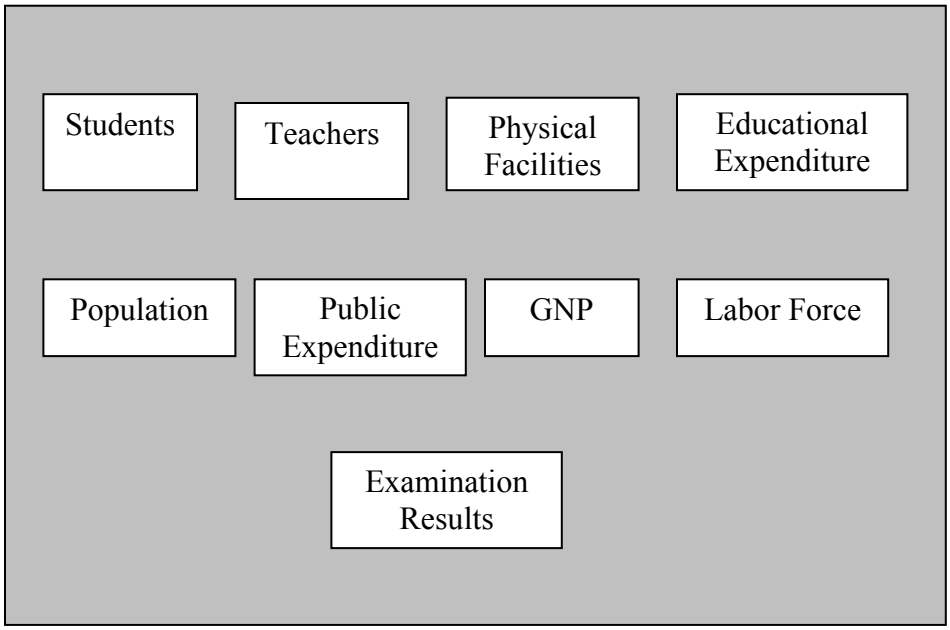
3. Software Requirements

The EPMIS system has to be architecturally designed as an open and scalable software. The system has to be portable and able to run on the Windows NT operating system using any Open Database Conectivity (ODBC) compliant database.

The implementation of the EPMIS system has to be designed as a Client/Server Architecture. Initially, it should handle at least two clients using Windows 95 and a server using Window NT operating system with a multi-user database such as Sybase. The presentation layer should reside on the client sites and the database layer should reside on the server. The software for EPMIS system should be developed using a graphical user-interface development tool such as PowerBuilder integrated with a statistical analysis tool such as SPSS.

4. Key Variables:

The software will cover information on key education planning variables:



5. Computation of Planning Parameters

With the help of EPMIS, the educational planners and managers should be able to compute the following indicators required for preparation of educational projects, plans and budgets at institutional, district and national levels.

1. Educational Access Indicators

- . Average Catchment Area (ACA)
- . Gross Enrollment Rate (GER)
- . Net Enrollment Rate (NER)
- . Female Participation Rate (FPR)
- . Transition Rate

2. Student Flow Indicators

- . Drop-out Rate
- . Repeater Rate
- . Promotion Rate

3. School Resource Utilization Indicators

- . Excess Institutional Capacity Rate
- . Average Size of the School
- . Average Class Size
- Average Stream Size

4. Physical Facility Utilization Indicators

- Space Utilization Rate (SUR)
- . Time Utilization Rate (TUR)
- . Global Utilization Rate (GUR)

5. Teacher Utilization Indicators

- Average Student-Teacher Ratio
- . Average Teaching load per Teacher

6. Cost of Education Indicators

- . Institutional Level Unit Cost per Student
- . Private Unit Cost of Education
- . Unit Cost Per Class
- . Average Salary per Teacher
- . Unit Cost per Period

- . Unit Cost per School

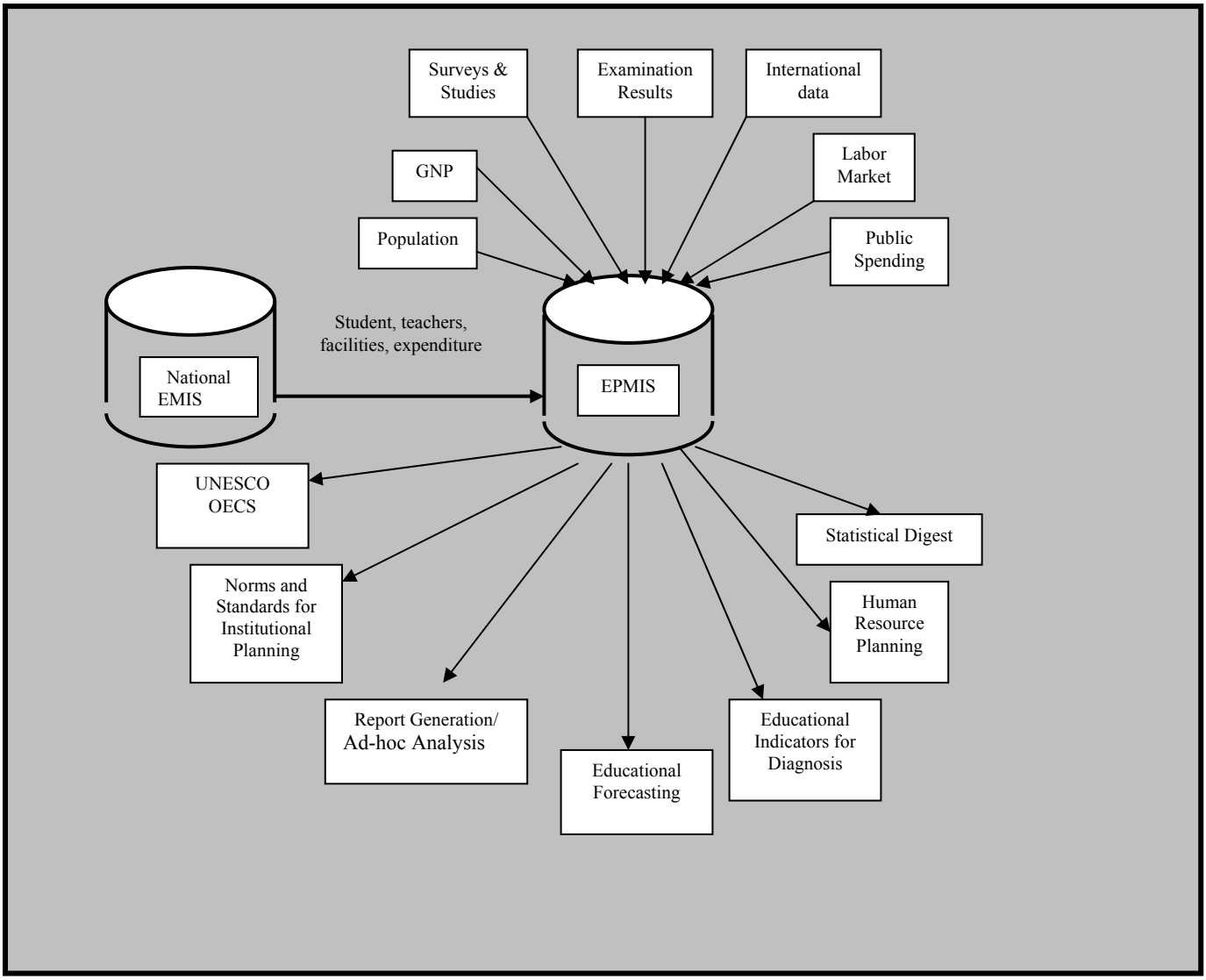
7. Education Budgetary Indicators

- . Percentage of Public Current Expenditure on Education
- . Percentage of Public Capital Expenditure on Education
- . Percentage of Education Expenditure in Relation to the Gross
- Domestic Product (GNP)

8. Institutional Output Indicators

- Percentage of Students Passing the Common Entrance Examination
- . Percentage of Students Passing the Caribbean Examination Council

6. Data Flow: Education Planning and Management Information System (EPMIS)



References

1. Ministry of Education, Human Resource Development Youth and Sports, Basic Education Reform Project, St. Lucia
    - Staff Appraisal Report, December 22, 1994.
    - Project Implementation Manual, August 1995.
    - Annual Work Plan. 1996 – 1997, September 1996.
    - Statistical Digest, 1994 – 1995, March 1997.
    - Project Progress Report, September 30, 1997.
    - Report on Candidates' Performances in the 1997 Local Examinations: Common Entrance, Common Middle and Standard Six School Leaving Certificate, September 1997.
    - First Interim Report on Educational Planning Consultancy by Norrel A. London, November 1997.
    - Draft Proposal on Local Area Network (Phase 1), March 1998.
    - Educational Management Information System (EMIS)
        - Pre-Schools Questionnaire
        - Primary Schools Questionnaire
        - Secondary Schools Questionnaire
        - Tertiary Institutions Questionnaire
        - Adult and Continuing Education Questionnaire
    - Performance Budget 1998 – 1999.
    - Administrative and Supervisory Structure of the Ministry.

- Aide-Memoire, June30 - July5, 1997.

2. Organization of Eastern Caribbean States (OECS)

   - OECS Education Reform Strategy, December 1991.
   - Data Base Form: Tertiary Institutions-Studies. Form: TSD
   - Teacher Data Base Form Secondary and Primary Schools. Form: TSP

2. World Bank

   - Institutional Strength Component: Report on Educational Planning and Management, June, 1994.