

Eastern Caribbean Education Reform Project (ECERP)

Establishing a Sub-Regional
Education Management Information System (EMIS)

*Report on the OECS EMIS Project :
1998 - 2002*

**OECS Education Reform Unit
Castries, St. Lucia**

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Report on the OECS EMIS Project: 1998 – 2002

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Table of Contents

Abbreviations.....	i
1.0 Introduction and Background	1
2.0 Summary of EMIS Project Activities with Timelines	2
3.0 EMIS Pilot Project – Software and Country Selection	6
4.0 Consultant’s Evaluation of EMIS Pilot (See Sect. 5 for OERU’s comments).....	11
4.1 Consultant’s Report of Visits to Some Pilot Schools	12
4.2 Consultant’s Overall Evaluation of the Software & Pilot.....	16
4.3 Consultant’s Summary of the Pilot Evaluation.....	20
4.4 Consultant’s Assessment of Lessons Learned in Pilot	25
5.0 OERU’s Comments on the EMIS Pilot Evaluation Report.....	28
5.1 OERU’s Comments on “Overall Evaluation of the Software & Pilot”	29
5.2 OERU’s Comments on “Consultant’s Summary of Pilot Evaluation”	33
5.3 OERU’s Comments on “Assessment of Lessons Learnt in Pilot”	34
6.0 EMIS Implementation – Important Issues for Consideration	35
6.1 Project Management Considerations and Issues.....	35
6.2 Technical Considerations and Issues.....	35
6.3 Institutional Development and Organizational Change Issues	36
6.4 Cost Considerations and Issues for Extending GPI as an OECS EMIS.....	37
7.0 Events Subsequent to EMIS Pilot Evaluation.....	39
7.1 GPI Seminar for EMIS Pilot Coordinators	39
7.2 GRICS’ Proposal for “Extending” the EMIS Project in St. Lucia	40
7.2.1 GRICS’ EMIS Software - GPI.....	41
7.2.2 GRICS’ Proposed Strategic Approach.....	42
7.2.3 GRICS’ Proposed Deliverables.....	44
7.3.4 GRICS’ Proposed Implementation Cost.....	44
8.0 Questions and Answers of the Pilot and Software.....	46
9.0 Recommendations.....	49
Appendices	54
Appendix A: GRICS Response (Part) to ECERP’s Request for Proposal.....	54
Appendix B: Summary of Comments by Participants at EMIS Conference.....	69
Appendix C: Proposed GPI Implementation Costing (as of 2000).....	74

Abbreviations

1. COTS – Commercial Off-the-Shelf Software.
2. CXC – Caribbean Examination Council.
3. DEO – District Education Office(r)
4. DFID – Department for International Development
5. ECERP – Eastern Caribbean Education Reform Project
6. EMIS – Education Management Information System
7. EU – European Union.
8. GPI – General Pedagogical Information Software.
9. GTZ – ‘The German Funding Agency’
10. ICT – Information and Communication Technology.
11. ISP – Internet Service Provider.
12. IT – Information Technology
13. LAN – Local Area Network
14. MIS- Management Information System
15. MOE – Ministry of Education
16. NTTM – New Technology
17. OECS – Organisation of Eastern Caribbean States.
18. OERS – OECS Education Reform Strategy
19. OERU - OECS Education Reform Unit
20. WAN – Wide Area Network

1.0 Introduction and Background

This report provides a historical perspective of the events that has characterized the efforts of the OECS Education Reform Unit towards the establishment of a harmonized Education Management Information System (EMIS) within the sub-region. It draws from several reports such as the EMIS System Review – November 1998 and, most recently the OECS Pilot Evaluation Report of December 2001.

The EMIS Pilot, in St. Lucia, has been one of the main activities of the EMIS harmonization thrust of the Unit. Selection of St. Lucia as the pilot country was based on a systematic evaluation of the state of IT at MOEs and Schools in the three Countries that expressed interest in hosting the Pilot. The Pilot Exercise started during August 1999 and was evaluated in September 2001. Notwithstanding the fact that the evaluation had to be conducted prior to the completion of the pilot, a myriad of lessons have emanated from the pilot and provide significant implications to EMIS implementations within Member States.

As outlined in the *OERS Implementation Report (1993)* and is still applicable today “ *the challenge facing many education planners, policy managers in developing countries is how to expand access, ensure equity, and maintain and improve quality in a world of growing demands on the education sector but in an environment of increasingly constrained resources.*” The OERU, through ECERP, has had the mandate to provide support and assistance to member states through the sharing of data, ideas, lessons learned, management techniques, processes and tools, etc. so as to promote uniform development of capacities of education systems and models. The production of this report is in keeping with that mandate and it outlines the lessons learnt and provides practical recommendations that are relevant EMIS implementations within MOEs and schools of the sub-region.

2.0 Summary of EMIS Project Activities with Timelines

Activities	Planned Start Date	Expected Duration	Actual Start Date	Target Group	Comments
Transfer of Administration of EMIS from OECS/GTZ to ECERP	Oct. 97	-	Jan. 98	-	Under the OECS/GTZ initiative, the following were achieved: 1. Development of extensive annual questionnaires for Primary, Secondary and Tertiary institutions. 2. Spreadsheet applications at MOEs for inputting data from questionnaires and generating annual Statistical Digest. 3. Scannable forms and Ms Access application for inputting and reporting on Teacher data.
EMIS Review Mission	Nov. 98	2 Weeks	Nov. 98	Principals, MOE Officials in Antigua and St. Lucia.	Report from Review Mission recommended the Piloting of a commercial-off-the-shelf EMIS Package.
EMIS Software Conference	Apr. 99	3 Days	Apr. 99	Statisticians, Educ. Planners, IT Officers and Principals from the Sub-region	Conference was held in Grenada and 3 software companies were represented
Drafting and Issuing of Request for Proposals For Procurement of EMIS Software Package	Apr. 99	1 Month	Apr. 99	Four Companies invited to bid: 1. ProSoft LTD., Jamaica 2. GRICS, Canada. 3. Chancery LTD., USA 4. SRB International, Canada	All Four Software vendors responded to the Requests for Proposals.
Selection / Evaluation of EMIS Software	May 99	2 Weeks	May 99	-	GRICS' EMIS software package – GPI was selected.

Section 2: Summary of EMIS Project Activities with Timelines

Activities	Planned Start Date	Expected Duration	Actual Start Date	Target Group	Comments
Selection of Pilot Country	June 99	1 Month	Jul. 99	MOE within the OECS.	✓ Three Member States expressed interest: Antigua & Barbuda, St. Kitts & Nevis and St. Lucia. ✓ St. Lucia was selected.
EMIS Installation / Implementation	Aug. 99	8 Months	Nov. 99	Key officers at the Ministry of Education and Coordinators at the 24 Pilot Schools.	Implementation Process was delayed due to four main reasons: 1. Incomplete data entry. 2. Connectivity problems. 3. Continual Customizations. 4. Delay in procurement of licensed communications Software – Citrix Metaframe™.
Training of Technical Personnel	Aug. 99	1 Week	Jan. 00	Training was provided to: 1. Network Admin. 2. Computer Technician 3. Software Engineer. 4. Statisticians.	Training was provided by the Software Vendors in the (1) Installation and Management the GPI Software; (2) Microsoft SQL; (3) File and Application (BackNet) Servers.
GPI Course #1 (4 days) – Basic Knowledge	Aug. 99	1 Week	Jan. 00	Selected EMIS Coordinators at the MOE and Pilot Schools.	Course Content / Activities: 1. Table Creation 2. Using Tables with the Interface. 3. System Security. 4. Supervised Data Entry.
GPI Course #2 (4 days) – Evaluation, Absences & Report Editor	Aug. 99	1 Week	Mar. 00	Selected EMIS Coordinators at the MOE and Schools.	Course Content / Activities: 1. Developing Report Cards 2. Attendance and Punctuality 3. Using the Report Editor

Section 2: Summary of EMIS Project Activities with Timelines

Activities	Planned Start Date	Expected Duration	Actual Start Date	Target Group	Comments
EMIS Seminar	Aug. 99	1 Day	Mar. 00	Senior MOE Personnel.	Education Consultants from Software Company provided exposure to: 1. The “Enterprise Change Model” to successfully manage the change process during implementation and sustainability of the St Lucia EMIS project. 2. Key lessons learned from a Canadian perspective - to illustrate some of the common barriers and solutions for successful EMIS implementation. 3. The GPI interface system.
EMIS Meeting of Principals	Jan. 00	1 Day	Jan. 00	Principals of Pilot Schools.	The following items were discussed: 1. Background to New Computerized EMIS 2. Coding Standards (for Students, Schools, districts, MOEs, Countries) 3. Description of GPI Training Courses. 4. Roles and Responsibilities of Teachers, Principals, MOE Officers.
Data Entry Exercise	Aug. – Dec. 99	5 Months	Feb. 00 – Sept. 01	-	The Data Entry Process turned out to be one of the most challenging aspects of the Pilot: 1. EMIS Coordinators started the process during training sessions; 2. Trained Data Entry Clerks continued but were stopped soon after; 3. Student-Teachers returning from studies completed process only in Sept. 2001.

Section 2: Summary of EMIS Project Activities with Timelines

Activities	Planned Start Date	Expected Duration	Actual Start Date	Target Group	Comments
GPI Training #3 – Class Register & Timetabling Modules	Mar. 00	2 weeks	Mar.00	EMIS Coordinators and Principals of Pilot School.	Principals and Coordinators expressed much appreciation of the utility of those modules.
EMIS Education Drive : Video Production	Feb. 01	–	Feb. 01	Stakeholders in the Education System: Ministry of Education Officials, School Principals, Teachers, Parents, Students.	The Unit developed and released a Video (“Enter EMIS”) which highlighted the utility of an Education Management Information System (EMIS) to the Education System of Member States.
EMIS Pilot Evaluation	Apr. 00	1 Month	Sept. 01	MOE Officials, and Principals and Teachers of Pilot Schools.	✓ The evaluation was done a year-and-a-half after the scheduled date, but before the many statistical reports and timetables were generated from the system. ✓ The OERU received the Consultant’s Report and on the basis of its involvement and observation of the various tasks, concluded that the report WAS NOT an accurate reflection the events that characterized the EMIS Pilot Project.

3.0 EMIS Pilot Project – Software and Country Selection

The “ECERP EMIS Movement” actually began with the systematic review of data systems at MOEs and educational institutions in the region and visits by a consultancy team to Antigua & Barbuda and St. Lucia - a leeward and windward country. The outcome of the review was produced in a report entitled “**ECERP EMIS System Review – November 1998.**” Two of the main findings of the study were as follows:

1. The EMIS Project sponsored by EU and GTZ initiatives in the 1994-1996 had not been successfully integrated into the Ministry of Education management systems within the OECS member states. Many schools were not completing and submitting questionnaires to their Ministries of Education.
2. The rather extensive data collection questionnaires, designed to collect initial baseline education data during the first year of that project (which was to be replaced by more simplified questionnaires to update the data baselines) were still being circulated four years later.

The key recommendation from the review was that a commercial-off-the-shelf EMIS package should be selected and piloted in one member state and later promoted for implementation by other member states.

A Computerized, Internet-based COTS EMIS was recommended over the continued use of the Questionnaire-based system primarily because it provided key decision makers (Principals, Teachers, Education Officers etc) in the education system with the opportunities for:

1. Real-time access to accurate and valid information on Students, teachers, schools, etc.
2. Appropriate and electronic storage of all data and information.

The review team comprising both an EMIS and education planning consultant in addition to the OERU's Information Specialist, considered and discussed several Pilot Implementation options:

Option #1: Piloting of at least three packages in one member state;

Option #2: Piloting three packages, one in each of three member states.

Option #3: Piloting of one package in as few as five school sites in every member state;

Option #4: Piloting of one software package in a significant number of school sites in one member state.

Option #5: Piloting of one software package in about 5 sites in one member state.

The fourth option was adopted on the basis of the following:

- There was concern that no one country would have the human capacity to administer and provide technical support for three separate software packages as outlined in option #1.
- Option #2 would put a strain on the capacity of the OERU to coordinate implementation in three separate states.
- Participation and involvement of every member state as outlined in option #3 would result in a high cost implication to ECERP. Significant funding would be required for Software licences and for administration of the various sites.
- Software Vendors find it “not worthwhile” to sell few user-licences, compared to sales figures in the North American region where opportunities of over 100 user-licences per State or Province per contract are achieved, as defined by option #5.
- Option #4 provided the opportunity for one MOE to have a complete pilot experience with the potential for sharing the experiences and lessons learnt with other member states.

On that basis of option #4, Request for Proposals (RFPs) were sent out to four interested companies and one software package (GPI, from GRICS in Montreal, Canada) was eventually selected. GRICS' response to the RFP is attached (Appendix A). It is worthwhile to note that the software was selected without the direct input from the Pilot Country (St. Lucia), which was later selected. However, an EMIS Software Conference was hosted in Grenada prior to the actual software selection exercise.

Participants at the Grenada EMIS Conference included Education Planners, Statisticians, IT Specialists and Principals. Demonstrations were made on three EMIS Software packages. At the time the Unit was not aware of the existence of the software package “*School Manager*” from Jamaica. Additionally, the software company *SRB International* sent a demo CD and a brochure of their package, but did not send a representative. Appendix shows a comparison table illustrating comments by participants on presentations of two of the main software packages.

The selection process was carried out by a Canadian EMIS Consultant, a Caribbean Education Consultant and the OERU's Information Specialist. The selection of an EMIS software was based on a thorough evaluation of the Request for Proposals submitted by the four software vendors. Proposals were awarded points based on the response to each specific requirement outline in the RFP. Points from each section were weighted and a composite score was awarded to each of the vendors.

Selection of a pilot country was based on a systematic evaluation of the state of IT at MOEs and Schools in the three Countries (Antigua & Barbuda, St. Kitts & Nevis and St. Lucia) that expressed interest in hosting the Pilot. The ability of the country to fulfill specific minimum requirements was also considered. Based on the evaluation results St. Lucia was selected as the Pilot Country. The table over leaf illustrates these requirements and the OERU's evaluation of the level to which the Pilot Country in fact met these requirements during pilot implementation.

Table illustrating OERU Specified Implementation Requirements and extent to which these were met by Pilot Country

Requirements as Specified by OERU and Agreed, in Principle, by Pilot Country	Extent to which Requirements were met by Pilot Country during Pilot Period
1. Each School or other relevant education institution must have at least a Pentium Computer installed.	Generally, every pilot school had a functioning computer; however, a few schools persistently complained of problems with their modem, systems unit, quality of telephone line access etc.
2. Ministry of Education office must have a File Server with LAN and WAN access. LAN access could be via Ethernet and WAN via at least a 64-Kb dedicated Internet Line.	The MOE met that requirement; however, during the pilot period the OERU became aware that several Secondary Schools accessed the Internet on that very same 64 –Kb line resulting in extremely slow and problematic connections for EMIS Clients.
3. Each District Education Office (where they existed) must have a File Server with at least a 33.6-Kb modem line or dial-up Internet connection;	A client-server model was utilized, providing direct access between the MOE and the 24 Pilot Schools.
4. Commitment to the provision of Managerial/ Technical Support at the following levels of the Education System: a) Ministry of Education MIS/ Statistics/ Planning Office – A full-time Systems Administrator. b) District Education Offices - Data Entry Clerk c) Schools - Systems Support Personnel (Computer literate Teacher with fewer Teaching hours) and Data Entry Clerk.	One of the key challenges of the pilot was that of staff turnover / attrition at the IT Unit at the MOE. a) A full-time Systems Administrator was not assigned to the EMIS Project but in the initial phase of the Project the IT Manager and the main Statistician, managed the Project. b) It was established that there would be no need for data entry clerks at the District Education Office. c) Where as one Teacher / Principal was selected to attend training session, no Policy Decision was taken to provide fewer teaching hours to Coordinators. Teachers complained of having no time for data entry and generally displayed little responsibility and accountability for duties

Requirements as Specified by OERU and Agreed, in Principle, by Pilot Country	Extent to which Requirements were met by Pilot Country during Pilot Period
	assigned.
5. Commitment to upgrade computer hardware at least 4 years after installation.	Not Applicable.
6. Commitment to extend the EMIS application to include the remaining primary and secondary schools upon successful implementation of the pilot project.	Pilot was evaluated before any comprehensive Statistical reports and timetables were generated from that System.
7. Commitment to work with the OERU, TECSULT EDUPLUS, the selected software vendor and other consultants on the implementation of the Pilot system and to adhere to the time schedule of the project	✓ The MOE displayed commitment to the process by the provision of a significant amount funds primarily for conducting and hosting of the various training sessions during the Pilot period. ✓ However, a sustained level of responsibility for managing the pilot declined significantly with staff attrition occurring mainly in the IT Unit at the Ministry of Education.

4.0 Consultant's Evaluation of EMIS Pilot (See Sect. 5 for OERU's comments)

The EMIS Pilot Evaluation, which was originally timetabled for April 2000 was finally done a year and half later, September 2001, due to various challenges during pilot implementation (relating to e.g. connectivity, data entry etc). A Caribbean Consultant was contracted to undertake that activity which was coordinated by OERU's Information Specialist and assisted by key officials from the Ministry of Education in St. Lucia, the pilot country.

The consultant was required to undertake the following:

- Perform document review.
- Design instruments (interview schedule and questionnaires).
- Collect and analyze data
- Produce and submit report with recommendations

The evaluation exercise was expected to utilize observation, questionnaires, and interviews - targeted at Ministry of Education officials, teachers, and principals of the pilot schools in St. Lucia.

The timing of the consultant's visit in fact coincided with the period when data entry, for most of the sites, was just about completed following several months of challenges with the software customization and connectivity. Thus the exercise was limited to reporting on lessons learnt from the following:

- 1.0 Software and Hardware installation and use
- 2.0 Connectivity issues.
- 3.0 Administrative and Training.
- 4.0 Data entry exercise.

The OERU appreciated the short period of time accepted by the Consultant to perform the Evaluation exercise and in particular to conduct interviews sessions with the various users and stakeholders of the EMIS Pilot. The interview exercise and visits to pilot sites were done in fewer than 5 days. The Unit is of the opinion that the consultant made a concerted effort to capture the diverse list of lessons that characterized the Pilot exercise.

However, it is also the OERU's view that the Consultant, in his attempt to arrive at conclusions to these various issues, made some statements that ***the OERU cannot identify with***. After repeated attempts to have the Consultant rectify these various issues, the Unit took the decision to provide its response to and analysis of some of the statements advanced by the Consultant in Section 5 of this report.

Most significantly however, **the Unit has taken the decision to share only aspects of the Consultant's Report that it has deemed important and sufficiently reflective of the pilot situation**. Four relevant aspects of the Consultant's report are highlighted as follows:

4.1 Consultant's Report of Visits to Some Pilot Schools

The following represents the report by the Consultants on visits made to five of the Pilot schools. It is important to note that the report is based on interviews carried out by the consultant and not observations undertaken by the same.

1. Pilot Site # 7

This first site visited was one of the schools where there was only one computer, in the Principal's office, on which the software was installed. This meant that access to the software was very limited. The teacher selected as the contact person at this school benefited from 1 week of training (covering materials in the 2nd workshop series only).

Major challenges to the pilot implementation in this school include:

- How to get access to the software with only one computer and a school enrolment of over 800 students and approximately 25 staff.
- The lack of allocated time for the contact teacher to manage the pilot activities, given the 'all-subjects assignment' nature of teaching in a primary school, and no clerical assistance in the administrative office.
- The very slow pace at which the data entry is taking place.

One positive contributing factor in this situation is the interest and involvement of the school principal, even with little or no orientation to the software.

2. Pilot Site #9

This is a small site with an all-boys population of approximately 190 students.

There is one participating teacher in the pilot exercise, with one other teacher having a little working knowledge of the computer. The main participant has benefited from training/ orientation and is making relatively significant progress with the data entry aspects of the pilot.

Major challenges in this situation are:

- The problem with connectivity (getting online access).
- Lack of available time, during school sessions, to devote to the pilot.
- The software was not found to be user-friendly, and
- Sections of the manual were difficult to understand.
- Inability to effectively execute students' promotion on the software.

One of the few positive factors in this situation is the interest of the participants. Another positive is the support of the principal; and a third is the fact that there is a back-up resource person willing to assist.

3. Pilot Site #10

This is one of the secondary school sites where data entry has been completed in respect of students' records, and some amount of updating has been done. In this situation with a student population of approximately 700, there are two (2) participating teachers and other computer literate teachers available to assist.

Participation in the training / orientation has been fairly significant.

Major challenges in this situation are:

- Access was initially difficult, and sometimes certain files were unavailable.
- Manuals were not available; and the profile for access limited.
- While the data were available, no report has yet been generated.
- Printing of reports was not possible; and alternative solution came late.

Some of the positive factors at this site include: the fact that participants at this school found the data entry to be "fairly easy". The teachers also felt that the development of databases on students would prove very useful to their work.

4. Pilot Site #13

This is another of the sites where participation in orientation / training for the pilot has been fairly good; and significant progress has been made in the data entry aspect of the pilot, particularly with the students' records.

Major challenges in this situation are:

- Low level of access to the computer facilities by teachers, if and when there is the interest in utilizing the records.
- Some amount of related uses of computers being made in the school.
- The fact that no printing was possible; and so, no practical use is made of any report from the system.

One major positive in this situation is the interest of the participants in computer technology and use of databases, which could be generated by the software.

5. Pilot Site #22

This is perhaps the first school site where the software was installed; and data entry has been completed. However, the pilot has not yet moved to the next level where lessons are learned from practical uses of the data generated.

The participating teacher in this situation has been fully involved in the training/ orientation for the pilot; and is one of the few persons who have managed fairly well the difficulties faced in using the software.

Major challenges in this situation include:

- The unexplained loss of 112 records from the system during data entry.
- The lack of effective application of the timetabling module.
- The limitation of fields in working with the teachers' database.
- The fact that the system “hangs-up” every time entry is made in the "gender" field of student/ teacher records.

Some of the positive factors in this location include: the level of technology awareness of the participating teacher; the positive support of the school principal; the keen interest in uses of this type of software in the school; and the fact that the software is seen to be fairly useful in helping the school fulfill its administrative/ functional obligations to the Ministry of Education.

4.2 Consultant's Overall Evaluation of the Software & Pilot

Educational Management Information Systems (EMIS) may be defined as structured products and services designed to produce educational based information that can be used at the management level of an educational organization to serve the functions of: planning, controlling, reporting and decision making. Evaluation of any EMIS product, such as the software under review, must therefore be assessed against some set performance criteria that are usually determined by the needs of the organization the EMIS product is intended to serve. The following is the evaluator's overall assessment of the selected software and pilot use of it in this context.

Technical Quality of the Software:

The GPI software is assessed to be fairly sound in technical quality; but several of its design structures are still incomplete, and the on-screen presentations are not very user-friendly. Consistent with the generic purposes of an EMIS, the software has the capacity to support critical functions of planning, controlling, reporting, and decision-making (to a far lesser extent). However, it is inflexible in terms of accommodating any form of existing accountability framework - localized types and levels of reports, reviews, performance management system or educational information system, without the need for additional customization. Under the mutual agreement of this pilot, it was understood that all required customization would be addressed by the software provider, at no additional cost.

While the software has the facility for generating within-system reports, it is very limited in respect of import/export tools and would therefore limit data migration from useful sources. The software does not currently facilitate virtual community information management, or collaborative e-learning initiatives. These are features that would make investment in an educational management information system (EMIS) like this more cost-effective.

Assessment of the Utility of the Software:

Perhaps the best judge of the utility of any software is the user. This is so since the user is usually the one to test the adequacy of the software under actual conditions of normal use. However, where the user has nothing against which to compare the utility of a product his/her impressions of the product may be influenced by the “novelty effect”. Given the rather serious nature of the set of problems encountered in the use of the GPI software the fairly high rating of the elements of utility by the users seem to be unjustified; or at least in part may be explained by the novelty effect, since the software has not yet been fully utilized in practical applications within any of the school sites. A high level of interest has been indicated for the Timetabling Module of the software; and a special 9-day series of workshop/training in this module was conducted for principals. However, no conclusion can be made about utility or effectiveness of the software, even in respect of this module; since no sample timetable has yet been developed and used for some lessons to be learned.

Assessment of the Software Support System:

One of the most significant provisions within any software support system is a manual, or user guide. The manual for the GPI Software has been repeatedly found to be inadequate, weak in terms of problem identification & solution, and difficult to comprehend (sometimes requiring French to English translation).

Other critical areas of the software support system such as: the built-in "help" facility and technical/follow-up support from the software provider, have also been found to be inadequate in this pilot. Overall development of the support system of the software is incomplete; but this can be partially explained by the need for adjustments in the customization process that has been undertaken.

Assessment of this Pilot Implementation:

There are five critical success factors against which effectiveness of the implementation of this pilot might be judged.

1. Suitable Design: A suitable design and development framework, with clearly defined performance criteria and / or expected outcomes.
2. Preparation: Proper preparation of the pilot environment & orientation of participants in the pilot to ensure consistency and commitment to the completion of the pilot exercise as planned.
3. Realistic Schedule: The scheduling of pilot activities in such a way that allows ample time for full experiences with the product, while meeting implementation targets.
4. Adequate Resources: The provision of adequate resources (personnel & material) to ensure full coverage and support for the pilot activities.
5. Monitoring & Evaluation: An effective monitoring and evaluation system to ensure consistency, quality control, and the provision of information to facilitate in-process decision making for efficiency and effectiveness of the pilot.

This pilot project was fairly well supported by a broad-based collaborative effort between the Project coordinators of the OECS Education Reform Unit (under the overall project plan), the Ministry of Education (under its related internal project plan); and with the support of participants in the school system. However this pilot project was affected by some design flaws - as reflected in the identified weaknesses, particularly in respect of factors: #1, #3, and #5.

Given the selection of only one software and little variation in implementation, the pilot was much too large in scope and coverage. Determination of level of

participation should have been guided by specific objectives of the pilot; and there should have been much less redundancy in the pilot coverage. Where a broad coverage in sample was deemed necessary, for one reason or another, variations in the implementation should have been used to ensure that a variety of useful lessons were learned from different experiences with the software.

One justification offered for the relatively large pilot was in terms of cost. Since the license for the software was based on number of schools (up to 25); and since the cost of training by the vendor would not be significantly greater for 25 sites than for fewer sites, the decision was taken to maximize on these provisions.

While assessment of cost-effectiveness is critical to evaluation of any product used in a pilot exercise such as this, it is difficult to make a conclusive assessment of the real value of the software in this case, since the product has not yet been fully utilized in any of the pilot sites, from which the important element of cost- benefit could be drawn and factored into an assessment of overall "real value".

However, on the basis of current information on cost, it is reasonable to make the following general points:

- Given the necessary customization and required support resources to make the software suitable to the particular context, overall cost of this EMIS software may run well beyond any reasonable level.
- Given the lack of flexibility in the software design to accommodate data migration from external sources; and given the fact that this software does not yet offer important features such as virtual community information management and the facility for collaborative learning, it may not be possible to achieve cost-effectiveness with this software.

4.3 Consultant's Summary of the Pilot Evaluation

S1: Prior to the implementation of this pilot, several preliminary activities were organized and conducted. These included:

- i) Request for Proposal (RFP) - developed / presented in May 1999.
- ii) Selection of the EMIS Software for pilot use - conducted by a panel (of IT Personnel, Statisticians, and Principals) - in May 1999.
- iii) Selection of the pilot / school sites - in August 1999.
- iv) Contracting of the EMIS Supplier - done in September 1999.

The appropriate systematic approach was employed in respect of these preparatory activities; but the project seemed to have lost its momentum for implementation after these initial activities.

S2: The pilot exercise, initiated in 1999, was officially started in January of 2000, with the installation of hardware and software in the pilot sites. The twenty-five (25) pilot sites include: 24 schools - ranging from infant, to primary, to junior high, and secondary/comprehensive, representing all six (6) districts and one administrative office of the St. Lucia Ministry of Education.

While the inclusion of as many as 25 sites in this pilot was explained by the rationale of maximizing the site license on the software being pilot-tested, this relatively large number of sites involved in the pilot proved to be unmanageable - given the limited resources to monitor implementation of the pilot across these far apart locations.

S3: The selected software (GPI - featuring modules for students' records, school records, evaluation, attendance/absence, and reports) was installed at each site on independent/localized (Citrix) servers, by the end of February 2000.

Initial development of the GPI Software was done in French; and it is still in the process of development and conversion to English. However, It was mutually accepted that a significant amount of customization of the software for this context was necessary; and that this would be done during the pilot exercise.

While the selected software may have been fairly systematically designed and developed, the providers were not quite ready for the necessary modification or design adjustment that application in this educational environment seemed to have required.

- S4: The users have shown keen interest in some aspects of the software, specifically: the *Class Register Module*, and the *Timetabling Module*.

The significant levels of interest in these features/ modules are directly related of the expressed needs of the participating schools, in areas that are regular/routine activities. It may well be that interests in other aspects/ features of the software are not expressed because of ignorance of their utility/ applicability to teachers' classroom and administrative activities.

- S5: Orientation, in lieu of a formalized training, was given to Ministry of Education staff (selected from both the Information Technology and Corporate Planning Units), while the vendors were in the process of the system installation and set-up. About eight staff members were involved.

While Ministry of Education staff seemed to have managed the training, it was obvious that responsibility for the GPI Software was treated as a kind of "add-on" to the functions of the related MOE Officers. Effective use of the software through the pilot exercise required special coordination or oversight

from the Ministry of Education. The informal orientation given to MOE officers was inadequate.

- S6: Notwithstanding the inadequacy of orientation/training, related Ministry of Education Officers played important roles in the preparatory and actual implementation activities of the pilot.

These included their involvement in: i) planning; and the selection and preparation of pilot sites; ii) installation of the related hardware and software; iii) promotional and follow-up support activities; iv) orientation and training workshops; v) process monitoring and basic software problem solving; vi) on-line support for the users at the local/school level; vii) provision of data entry/ clerical assistance.

- S7: Two workshop series of user-training/orientation were scheduled between February and March of 2000. The workshop series were: i) Workshop Series #1: - (GPI Basics), including components of creating tables, tables interface, student data, and data entry; ii) Workshop Series #2: (GPI Evaluation, Absences, & Reports), including components of reports inputs, reports output, absences, and report editor. Approximately fifty (50) persons benefited from this training - conducted by the software provider as well as selected trainers of trainers from the Ministry of Education.

Participation in the school sites training was significant. Completion rate of the planned training activities over all three sets of training (Basic GPI, Evaluation Module, and the Timetabling Module) ranged from 65% to 88%.

S8: The pilot process in the 24 school sites mainly involved data entry of students' records, and some teachers' records. The overall rate of data entry in the school sites range from a low of 30% to high of 100% across the sites, with most of the cases recording about 90%. None of the school sites has yet moved to the next stage of the pilot - where practical uses of the software is made for lessons learned.

As observed before, data entry activities were much too drawn out to be efficient; and this seriously affected the forward movement of the pilot.

S9: Major challenges / problems encountered in the pilot process involved mainly set-up difficulties, errors in software use, inadequacies in support facilities for the software; the slow pace at which the data entry was done; and some amount of dissatisfaction with certain provisions (or lack of provisions) of the pilot exercise.

S10: The evaluation of this pilot was commissioned in September of 2001 and completed in October 2001. The evaluation exercise featured three sub-processes (Progress Assessment; Status Survey; and Formative Evaluation).

The direct data collection process involved site visits, observations and interviews with over 50 respondents representing a sample of 10 of the 25 sites, including school principals and school-based contact / resource persons and Ministry of Education Offices. Secondary data by means of mailed-in questionnaires were received from an additional 4 schools.

- S11: The software and pilot were assessed in terms of four main factors - (Technical Quality; Utility of the Components; Quality of Support Systems, and Provisions for Implementation of the Pilot). Summary of the users assessment of the software and pilot activities revealed that they were fairly satisfied/impressed with the utility of the software, less satisfied with the support systems provided, and even less satisfied with overall pilot.
- S12: Findings of the overall evaluation indicate that, while the software is fairly acceptable in preliminary design, it is not very impressive in its current offerings. The fact that the product is incomplete in design renders it unsuitable for any conclusive assessment of real value to the pilot context. However, several useful lessons were learned from use of the software.

4.4 Consultant's Assessment of Lessons Learned in Pilot

In a pilot of this type, lessons learned will be in direct relation to the scope, length, structure, resources/inputs, preparation, and strategies employed in the exercise.

Two significant lessons from the pilot related to scope and length are:

- i) Pilot testing of EMIS software is a complex process requiring a well-developed design, with performance objectives, in order to ensure efficiency and effectiveness.
- ii) The pilot process could get unduly long if output targets are not specified, and realistic scheduling of pilot activities is not followed.

The effectiveness of any pilot exercise such as this will be determined by the quality of its design structures, resources inputs and preparation. Lessons learned from this pilot that are directly related to these critical issues include:

- iii) Systematic design of the pilot exercise is critical to determining how efficient its implementation can be. The pilot was fairly well designed; but inconsistency between components/activities and allocation of resources for its implementation adversely affected some scheduled developments.
- iv) The adverse effects of inadequate resources on a pilot was shown - where some critical inputs were not secured from the partners who commissioned this pilot; and some necessary technical and administrative activities, including pilot monitoring were curtailed.
- v) In-process (during the pilot) design or customization of the product being pilot tested may sometimes be necessary; but may affect the pilot process in many ways, including in the overall schedule. This was certainly one of the lessons of this case - where the GPI software was still being developed during its pilot use.

- vi) Proper orientation / training of front-line users to the GPI software was critical to success of the pilot implementation. This orientation was inadequate; But, the more important lesson learned from this pilot was that it is necessary for orientation to include all stakeholders in selected pilot institutions, as well as the coordinating organization.
- vii) Any level of staff turn over, particularly of technical and resource personnel, can / will have significant effects on the implementation of an EMIS pilot. Implications are that similar adverse effects are likely during any subsequent large-scale utilization.

One of the most critical elements of a pilot is its implementation strategy. Lessons learned from this pilot point directly to a few weaknesses in the overall strategy for the pilot implementation. Two important observations to be made are:

- viii) Close monitoring and documentation of the pilot implementation are critical processes, which will help to ensure useful lessons are learned from the pilot. These were not effectively done in this pilot.
- ix) Until use of the EMIS software is fully integrated into the teachers' school practices, the new system will be seen as "additional work" - requiring additional staffing, or modification of staff responsibilities.

Perhaps the most important lessons to be learned from a pilot such as this are revealed in an assessment of indicators of early impact of the piloted product on the works and/or impressions of the participants. In this case, some of the most important indicators of positive early impact are:

- x) Indications are that almost all the users and school administrators are already convinced that use of an EMIS software, such as the one in this pilot, will provide a useful alternative to the usual manual forms of school data gathering and reporting to the Ministry of Education. However, there is as yet no clear evidence that teachers and

administrators have been fully convinced that such a system will mean less work for them.

- xi) Three of the main critical success factors of the pilot, which are also likely to be relevant in subsequent EMIS uses, are: a) commitment and involvement of principals; b) the engagement of a local level coordinator of the process; and c) role of the Ministry of Education in terms of policy perspective, support resources; and monitoring.

5.0 OERU's Comments on the EMIS Pilot Evaluation Report

It is important to note that the Evaluation Report submitted by the Consultant did not distinguish between technical issues associated with telecommunication connectivity and those that could have actually been related to software design/development. It must be further noted that during the early stages of the Pilot and in the absence of a proper licence for *Citrix MetaFrame™* (the prescribed support/school-access software), the MOE experimented with *Windows NT Terminal Server* software to allow schools to connect to the main server. That option resulted in connectivity problems for schools. Some schools were unable to logon to the system, others were disconnected during sessions and still others experienced hang-ups during data entry. With use of *Windows NT Terminal server* most users also experienced problems printing reports locally. Most connection problems were solved when the OERU procured *Citrix Metaframe™* on behalf of the MOE.

Problems with Internet connection were known to have persisted only at the six Secondary schools where the MOE provided shared Internet access through its *64 Kb line*. The bandwidth turned out to be too small to accommodate problem-free, simultaneous Internet access by the secondary schools and GPI access by the Pilot Schools. These issues could not be categorized as either design or developmental in nature, linked to the software, but rather problems that arose when schools were connecting in order to gain access to the GPI software located on the central server.

The following comments represent the OERU's statement on issues raised by the Consultant, which have been deemed inconsistent with observations and documented evidence at the OERU.

5.1 OERU's Comments on "Overall Evaluation of the Software & Pilot"

1. The statement made by the consultant the Software "*is inflexible in terms of accommodating any form of existing accountability framework...*" is not correct. The OERU is of the view, based on its experience and knowledge of Software packages, that any Data base Management System (DBMS) that meets the international standard – ODBC, allows for data migration between applications. GPI was developed built to use a *Microsoft SQL™* backend and a *Microsoft Access™* front-end, which thus implied that it met such standards. The absence of such a tool/module in an EMIS package is not considered a limitation in the functionality of that package to export/import data to/from another programme.

Additionally, the developments of reports in major DBMS applications have been in the main "open architecture", in the sense that the report development feature has always been handled by an "external" programme. In the case of GPI, all reports are done in either *Microsoft Access™*, *Microsoft Excel™* or even *SPSS™*. In several other Applications a separate programme – *Seagate Crystal Reports™* is the software of choice. Due to the plethora of reports that EMIS packages permit as outputs, these packages allow for the development of report templates to be done by "external" packages and this option represents a strong point and not a weakness of a DBMS. In the case of the EMIS Pilot, the vendors developed approximately 8 MOE-type report templates using *Microsoft Access™*, based on the request of the Corporate Planning Unit. The MOE was then exposed to the methodology of developing all the other reports required. That exercise cannot be considered as customization of the software package. The Unit observed however, that GPI was quite restrictive in facilitating the addition of new or modification of existing "data fields" by the MOE.

2. The Report also indicated “the *software does not currently facilitate virtual community information management, or collaborative e-learning initiatives.*” And added that “*These are features that would make investment in an educational management system (EMIS) like this more cost –effective.*” It is NOT the OERU’S view that the sub-region should investment in an EMIS package for primary and secondary schools that has a built-in e-learning facility; at least not at this stage in the implementation of the technology in the education system. There must be parallel movement between the cost of investment and the use of the technology in the education system. The use of technology in our education system is still at a “primary” stage. Moreover, cost-effectiveness cannot necessarily be achieved by the presence of such a feature in any EMIS. Generally, the more features included in an application the higher it is priced and the less robust are the various features. The key issue should be compatibility and inter-operability between packages. Most EMIS packages are modularized. They are marketed and sold as a base programme and have separate modules for Financial Management, Library Management, Facilities Management, etc that educational institutions may choose to acquire. The software used in the Pilot is no different.

It is important to note that GPI was selected based on the assumption that some schools (staff room and Principal’s Office) were in fact not networked and did not have Internet access. In fact this continues to be the scenario at many schools in the sub-region. During the EMIS selection process, the GPI software was singled-out for its Class Register Module that allows every teacher to input data (attendance, examination results etc) on a diskette (off-line) using any computer and later synchronize the data with the main database when the teacher / principal goes on-line.

3. In a statement about the assessment of the utility of the software the report states *“Given the serious nature of the set of problems in the use of the GPI software ... the fairly high rating for the elements of utility by the users seem to be unjustified; or at least in part may be explained by the novelty effect, since...”* The OERU wishes to make two points here:
 - i. “Serious problems with the design and development” of any software package such as GPI would normally be reflected as what would be considered as runtime, compilation or scripting errors. None of these “bugs” was reported to have surfaced at anytime during software use. Most of the issues encountered and associated with the pilot included: the presence of French terms in the software; lack of proper user-manual and initial connectivity problems and these were neither design or nor developmental in nature.
 - ii. The Unit is of the opinion that the high ratings by users for the utility of the software were infact justified. The Utility of EMIS continued to be judged by the potential elimination of frequent and sometimes big annual questionnaires that Principals and senior teachers have had to complete and submit to the MOE. Principals and teachers no doubt used this as a benchmark against the use of GPI.
4. The report also states that *“...this pilot project was affected by some design flaws ...particularly in respect of factors: suitable design, Realistic Schedule and Monitoring & Evaluation.”*
 - i. Firstly, it must be noted that this project, like any other educational project, was not characterized by any large surplus of funds and this limitation was evident by the delays experienced in completing entry of legacy data and the acquisition of appropriate license software. In fact the project operated without any contingency budget.

- ii. Secondly, the MOE under the auspices of the IT and Corporate Planning Unit held monthly internal meetings to which the OERU was invited. These meetings served as a deliberate mechanism to continually evaluate activities done at the time and to strategize next steps. Policy documents and rescheduling of project timelines were also agreed upon and developed at such meetings. The MOE used these meetings to plan two successful reinforcement workshops sessions for school-based EMIS Coordinators. The entire cost of the workshop sessions was borne by the MOE.
- iii. Regular meetings with Principals and school-based EMIS Coordinators were also conducted by the MOE, during the entire pilot period. During these sessions several issues associated with availability of telephone lines, non-functioning computers etc were reported on and action plans drawn up for redressed. The two coordinating Units – IT and Corporate Planning, took minutes of meetings.
- iv. The MOE also established mechanisms (telephone numbers and email addresses) for all schools to allow contact by schools to key MOE officials. Every school coordinator was provided with an email address for sharing of ideas and problems.
- v. The MOE (Statistician and an Ex - IT Unit Manager, Ag) scheduled and made visits to ALL pilot schools. Discussions centred on issues pertaining to the Utility of the Pilot and the need to have school coordinators assign time to do required data entry and other activities. Most importantly, staff sensitization was accepted as the main focus of these visits.

- vi. Mechanisms for regular communication with the software vendor were also established. Those included telephone numbers and a “hot-line” email address – gpi@grics.qc.ca for prompt response to queries and problems with the software by the Ministry. This service was utilized by key personnel at the MOE.
- vii. The MOE also worked with the participating pilot schools to standardize both Secondary and Primary schools report cards. Out of this exercise individual electronic report cards were designed for the various participating schools.
- viii. Records at the MOE would also show that an internal Project Implementation Plan was drawn up and regularly changed to reflect delays and challenges of the pilot implementation.

5.2 OERU's Comments on “Consultant's Summary of Pilot Evaluation”

The report indicated, “*The selected software (GPI)... was installed at each site on independent/localized (Citrix) servers...*” GPI is in fact a Client-server package; it is installed on the central server located at the MOE and schools connected using the client version of Citrix MetaFrame™ connectivity software installed on their computers.

The stated list of major challenges/ problems encountered in the report may be supplemented to include: (i) Telecommunication problems encountered by schools whilst connecting to the main MOE server and (ii) Lateness in the acquisition of user-licences of major supporting software packages.

5.3 OERU's Comments on "Assessment of Lessons Learnt in Pilot"

Again the OERU wishes to state that the Consultant apparently had not accessed appropriate documentation, but the MOE in fact exercised "close monitoring, continuous evaluation and documentation of the Pilot implementation." These activities were of course limited by the existence of adequate staff members. Activities became 'stretched" during the period when the IT Manager and Computer Technician posts became vacant. However, the statement made in point (vii) of that section is NOT a fair representation of what transpired during the pilot period. Documents at the Ministry would reflect the frequency and content of meetings and school visits.

The statement made in the report that "... *the product is incomplete in design, renders it unsuitable for any conclusive assessment of real value to the pilot context*" is **NOT supported by the OERU** for reasons previously advanced.

Additionally, there existed clear agreement between the OERU and the MOE on the outputs required in order to consider the software a valuable alternative to the statistical forms that schools presently use and thus justify the utility of the software. These outputs were clearly identified in the form of the type of statistical reports that Statistician in the Corporate Planning Unit needed to generate as part of the usual MOE Annual Digest. The OERU wishes to state that "real value of the pilot context" was not achieved; because some of the key MOE-type statistical outputs were not generated at the time the evaluation exercise was conducted.

6.0 EMIS Implementation – Important Issues for Consideration

6.1 Project Management Considerations and Issues

Based on the EMIS Pilot, a number of project management issues associated with the installation and implementation of any EMIS have been identified. They include:

1. The need to establish a contingency budget for project management, additional hardware/software requirements, outside institutional development, technical support, training and data entry as an essential element for successful implementation of this level of system/software installation/implementation;
2. The need for such budget to be approved prior to the start of the EMIS implementation program;
3. The need to recognize and reward EMIS Team Leaders, Team Members and Coordinators at the schools;
4. The need to establish and commit to a detailed internal project plan to support implementation of the system within the MOE.

6.2 Technical Considerations and Issues

A number of technical issues associated with the establishment and testing of the infrastructure designed to support an EMIS have been identified. They include:

1. Providing more time at the front end of the project to support the systematic installation, MOE- and school- based software customization and testing of the underlying computer networking software and connectivity components of the MOE systems. Costly time delays in the implementation of the EMIS system can be avoided with adequate time to ensure that these components are functional;
2. Providing online remote access to the vendor to support technical fault analysis / problem solving during system installation and initial operations;

3. Ensuring that all software within the underlying computer networking environment are properly licensed so that technical support can be accessed from the original equipment manufactures to solve any performance issues within the underlying computer networking and communications environments; and
4. That the cost options for the long-term support of the underlying computer networking environment be examined to provide best value for money. The Thin Client Server environment being piloted in St. Lucia, although slightly more expensive to start, results in better system performance and 40% less cost over the life cycle of the implementation.

6.3 Institutional Development and Organizational Change Issues

A number of issues associated with the institutional development / training activities to support the EMIS implementation have been identified. They include:

1. Provision of sufficient funds to support training and institutional development by the vendor;
2. The Train-the-Trainer methodology is still the most cost-effective mechanism that developing Countries like the OECS could use to ensure that knowledge and skills gained are shared at minimal cost and disturbance to the operation of the system and school, in particular.
3. Appropriate training facilities are required to support effective computer software training. MOEs should consider whether to establish generic computer training centres.

The computer training facilities should:

- a) Provide one networked computer for each trainee;
- b) Provide appropriate computer tables and office chairs;
- c) Have sufficient room for participants to be able to work without being too cramped; and
- d) Allow the instructor to install and test training setups prior to each course (i.e. networked connectivity, remote access to the applications programs and data sets to support the training (i.e. EMIS)).

6.4 Cost Considerations and Issues for Extending GPI as an OECS EMIS

Based upon an analysis of the pilot project and through discussions with the MOE and the EMIS vendor, the Unit has been able to determine all of the cost elements required to support a successful implementation of GPI. However, the cost components of any EMIS implementation involve the following elements:

1. The establishment of the networking/ communications environment within the MOEs, necessary to support a distributed computing environment (hardware, software, telephone connection time);
2. Costs to provide for desktop computerization of the selected Ministry positions and schools participating in an EMIS;
3. EMIS server (hardware and software) costs;
4. EMIS software licensing costs;
5. Entry of legacy and current data on students, teachers, facilities etc.;
6. External institutional development costs associated with contracting of the hardware/software vendors to provide for initial training of MOE staff assigned roles in support of the EMIS;
7. Internal MOE project management and institutional development costs associated with the development and implementation of new data policies and procedures within the MOE and finally the training of staff (initial and ongoing) to operate the new EMIS;

The pilot experience has allowed the Unit to generate a costing formula for subsequent implementations of GPI as an OECS EMIS. This formula is based on inputs from the vendor of the pilot software, which have been rationalized by the OERU based on our experience with the pilot project. It is estimated that these numbers would be accurate to within +/-10% of the actual costs based on the recommended project plan. The final actual costs would be based upon:

- Strategic decisions within each Ministry as to how and where they wish to address each of the infrastructure, computerization and internal institutional development cost components;
- Negotiations with the Local Internet Service provider (i.e. Cable and Wireless) on connectivity and usage costs;
- Detailed negotiations with the EMIS vendor (through the OERU) and/or specific project implementation strategies that would reduce, in particular, on the institutional development and the travel costs associated with project implementation.

7.0 Events Subsequent to EMIS Pilot Evaluation

7.1 GPI Seminar for EMIS Pilot Coordinators

The EMIS Software Vendor – GRICS hosted a Seminar on their software product, GPI, during the beginning of May 2002 at the Wyndam Morgan Bay Resort, St. Lucia. The seminar was attended by the following officers: Head of Unit , OERU; Information Specialist, OERU ; DFID Programme Manager; Deputy Chief Education Planning, MOE; IT Manager (Ag.), MOE; MOE Statisticians and EMIS Coordinators from some of the Pilot Schools.

The Agenda of the Seminar comprised the following:

1. *Brief Report on EMIS Pilot in St. Lucia* – Mark Ernest, Information Specialist OERU
2. *GRICS Corporate Profile* – Alain Lamarche, Vice-President GRICS
3. *GPI And GPI .NET Overview* – Michel Robert, Education Systems Specialist GRICS
4. *Future Of GPI* – Alain Lamarche, Vice-President GRICS
5. *Conditions For A Successful Pilot* – Michel Robert, Education Systems Specialist GRICS
6. *Proposed Action Plan* – Michel Robert, Education Systems Specialist GRICS

Essentially, GRICS sought to get feedback on their GPI EMIS Package used in the Pilot, to highlight existing and new features of the Software and to put forward a proposed Action Plan for bring the EMIS Pilot to fruition. The general feedback reflected at the Seminar was one where School Coordinators felt that the software was highly useful and user friendly but connectivity problems, non-functioning computers and lack of time prevented them from making complete use of it.

The new features of GPI highlighted by GRICS concentrated on: the Class Register; GPI Internet for Teachers and, the Electronic Portfolio. The first two modules were already made available during the Pilot period but were not utilized. The Electronic Portfolio was described by GRICS to represent “A cyberspace town hall for all partners and an indispensable tool for improving assessment, monitoring, learning and fostering academic success!” GRICS explained that “Competency-based, the electronic portfolio is an exceptionally versatile learning, evaluation, communication and management tool.”

A Proposed Action Plan was recommended by GRICS and following a brief meeting between The Permanent Secretary, Ministry of Education, St. Lucia; GRICS’ Education Systems Specialist from Canada; the Information Specialist, OERU; Deputy Chief Education Officer, MOE, and the Manager IT Unit, MOE, it was agreed then that GRICS would submit a detailed proposal for extending the pilot in about five schools in St. Lucia.

7.2 GRICS’ Proposal for “Extending” the EMIS Project in St. Lucia

As agreed in the Meeting between the MOE and GRICS, a formal proposal was submitted. At the time of publication of this report the Ministry had not formally responded to the proposal. Initial word indicates that the Ministry (1) does not have sufficient funds to implement the proposed project and (2) is considering proposal from two other EMIS software companies.

The following sub-sections reflect excerpts from the proposal submitted to the Ministry of Education, St. Lucia by GRICS:

7.2.1 GRICS' EMIS Software - GPI

GRICS has been involved in Education Management Information System (EMIS) development for many years. In the seventies we used IBM mainframes; in the eighties, mini-computers and since the middle of the eighties, microcomputers. DOS version of EMIS and other systems are still in use in some schools and districts in Canada. At the end of the nineties, GRICS invested millions of dollars in the development of a new bilingual and adaptable EMIS based on Microsoft Windows, GUI, other technical related standards such as SQL and ODBC. More recently we offered our users access in WEB base interface for all recent systems and new developments.

The EMIS GPI selected by the OECS-OERU ECERP project in 2000 is a robust; windows based EMIS that has benefited from decades of progressive development of the applications experience within the Canadian education environment. As we do nationally, we are sure that the proper customization of this system in the St. Lucia will meet your schools and ministry present and future needs. The resulting product is a comprehensive and user friendly system designed to support the myriad of needs associated with the management of:

1. Student Registration, File Management and Attendance Management.
2. Management of Written Records (Memos and disciplinary records)
3. Evaluation of Learning
4. Teachers Class Register
5. Creation of Students, Teachers and Rooms Timetables
6. Scheduling Exam Sessions
7. School Textbooks and Fees
8. Correction and Test Analysis
9. Links to PHOTO-TECH System (I.D. cards)
10. Editing Reports
11. Teachers/ staff File Management
12. Schools File Management

WEB based GPI access is available for Teachers and School Principals to capture data on students and subjects, terms results, collaborative comments, memos and all teachers Class Register activities.

Other new WEB based GPI access will be offered as optional activities in 2002 and 2003:

- Personalized Actions Plan for Special education students or students requesting particular follow-up. (Web access for specialists, teachers, students and parents).
- Portfolio for students, teachers and parents (Competencies educational reform oriented).
- Experimentation of a GRICS Educational Portal for students, teachers, schools, MOE and communities with Single Sign On and active personalized information access from / to GPI (not only simple hyperlinks).

7.2.2 GRICS' Proposed Strategic Approach

As was presented and discussed at the May 2002 GRICS Executives Seminar with the participation of the officials of MOE and school Principals, and OERU and DFID representatives, the strategic approach of the actual proposal is based on mandatory pre requisites. To ensure the achievement of technological and functional competencies on GPI, the following are proposed:

1. The hiring and training of a local (St. Lucian) GRICS Partner to Provide: Direct Service and efficient Vendor Support.
2. The selection of few pilot sites (especially if human support is at a minimum).
3. Work with sites representing different user context.
4. Specific Work Plan.
5. Identification of Coordinators (Persons in-charge at MOE, OERU and GRICS).
6. Efficient and effective software, hardware and connectivity installations.
7. The provision of relevant training program.
8. GPI EMIS customization.
9. Access to efficient and fast local support.
10. Provision of follow-up / continuous training and support.
11. Adherence to specific timeframe of approx. 6-12 months period.

Based upon lessons learned from the pilot, a turn-key implementation approach is proposed to allow the MOE to achieve its main goal: effective use of EMIS GPI at the MOE and within the 5 selected schools. Since it is unaffordable for the MOE to significantly increase human resources at the ministry and in schools involved in the EMIS implementation, GRICS will increase its investments in the project support and coordination. Giving more time to St. Lucia MOE and schools staff for the learning process and technological transfer, GRICS will, in a turnkey implementation approach temporary supply with experimented coordination and on site daily support resources. Together, we will focus on the same short-term result but also prepare further implementation phases by increasing local EMIS GPI competencies based on a practical and successful operational experience.

7.2.3 GRICS' Proposed Deliverables

Tasks	Task Descriptions
Task 1.	Planning, Assessments And Review: Internal St. Lucia MOE and External GRICS Work Plans/schedules for each activities and deliverables
Task 2.	Systems Installations And GPI Customization: GRICS is to demonstrate the operational EMIS GPI on clients, servers and network including security access and screens Customization.
Task 3.	Training Sessions And Workshops: GRICS is to provide all Train-the-Trainers and On-Job-Training Workshops of the program
Task 4.	Warranty Support And Final Certification: Support St. Lucia MOE and 5 selected schools users on GPI and GPI Internet.

7.3.4 GRICS' Proposed Implementation Cost

The following prices (in Canadian dollars) are provided:

Activity ID.	Consulting Days	Fees Sub Total	No: of Trips	Travel Sub Total	TOTAL COST
Task 1	24	\$16,680	3	\$16,770	\$33,450
Task 2	18	\$12,510	3	\$16,770	\$29,280
Task 3	60	\$41,700	9,6	\$52,830	\$94,530
Task 4	6	\$ 4,170	1	\$ 5,590	\$ 9,760
TOTAL	90	\$75,060	16,6	\$91,960	\$167,020

On acceptance of this proposal, GRICS will provide free licence of GPI and GPI Internet to the MOE and 5 designated schools during this implementation project. GRICS licensing contract must be signed by the MOE.

If St. Lucia MOE decides to continue to use GPI and GPI Internet in August 2003 after this implementation project, St. Lucia MOE accepts to sign a new GRICS licensing contract and pays the preferential price as negotiated by OECS-OERU in July 2001.

8.0 Questions and Answers of the Pilot and Software

I. Q: What was the duration of the EMIS pilot exercise?

A: The Pilot exercise took place over a period of two years.

II. Q: Why was the EMIS Pilot evaluated before schools and the MOE started making use of the software?

A: The Pilot exercise had gone on for extended period and member states were eager to find out the lessons learnt in an effort to decide on a way forward to their EMIS implementations.

III. Q: Was the software placed to any practical use during the pilot period?

A: The software was used in only the following limited situations:

- a. Inputting of valid data and students, teachers and the school.
- b. Design of standardized report cards and registration forms for both primary and secondary schools.
- c. Development of coding systems/standards for student ID, classes (Grades and Forms), subjects, etc.
- d. A few standard statistical reports relating primarily to distribution of students by school, grade, age, etc were generated from the system.

IV. Q: Which organization(s) was/were accountable and responsible for hosting the pilot?

A: The key organizations involved in the EMIS Pilot were the OERU, the Ministry of Education, St. Lucia and the Software Vendor - GRICS. Overall accountability of the Pilot was with OERU whilst implementation responsibility following the Training Session was with the Ministry of Education, St. Lucia.

Among other activities, **the OERU** through ECERP: (1) Coordinated the selection of the Pilot Country and Pilot Software; (2) Procured 35 user-licences of the EMIS software package – GPI and the support software Citrix Metaframe TM; (3) Provided financial assistance for the training of all coordinators, in use of the Software and to key MOE officials, in the installation and management of the System.

The Ministry of Education on the other hand: (1) Hosted (arranged the training facilities; paid for meals and transportation of trainees) the various workshop series; (2) Had the responsibility to provide all the computing (hardware and software) and telecommunication requirements for the main office and all the pilot schools; (3) Coordinate the data entry exercise.

The software vendor was responsible for initial installation of pilot software, training of end-users and support personnel, software customization and other logistical support pertaining to the software.

V. Q. Was the pilot successful?

A. The Pilot Exercise should be considered successful in as much it has provided the OERU with several significant lessons that Member States could now consider in their implementation efforts of an EMIS; however the fact that the software had not been completely utilized to produce several identified outputs/reports continues to be of concern to the Unit.

VI. Q. Is the OECS any closer to the realization of a harmonized EMIS as a result of the pilot?

A. Despite the lack of complete use of the pilot software, the OERU has taken the decision (based on the product demonstrated potential in the pilot and the, albeit, limited use of certain functionalities) to recommend that the GPI be one of the packages of choice for consideration by member states in their selection and evaluation of an EMIS solution.

VII. Q. Are member states generally prepared to implement a computerized EMIS such as the one piloted in St. Lucia?

A. Member States are of varying levels of preparedness. Whereas, several Ministries are establishing the type of telecommunications infrastructure necessary for an efficient and cost effective EMIS, the key factors continue to be the need for (1) recruitment of key personnel at the Ministry and School levels to champion the process and (2) the development of policies relating to personnel responsibilities, data entry, etc.

VIII. Q. What is the OERU's future role as far as EMIS is concerned?

A. In the immediate future, the OERU plans to undertake the following tasks:

- i. Develop a policy document to guide the implementations of EMIS Software packages by member states so as to ensure compatibility and interoperability between applications.
- ii. Conduct assessments of MOEs (three) readiness for implementation of EMIS.
- iii. Development of funding proposals for EMIS implementation within member states.

As a longer term project, the Unit will seek to establish a central server/hub that member states could use to host their EMIS implementations as an option that would result in a lower operational cost for them.

9.0 Recommendations

Based upon the experiences of the Pilot, the OERU strongly outlines the following recommendations to member states, planning to implement an Education Management Information System (EMIS) within their education systems.

Recommendation #1:

Member States need to ensure the timely acquisition of ALL licensed software packages required to implement an EMIS. Delays in the procurement of any software package could have a serious impact on the implementation schedule and result in reduce expectations from potential end-users.

Recommendation #2:

All File and Application Servers must be set-up and maintained with highly effective disaster recovery and data redundancy mechanisms. Such servers should ideally be located at the MOE or OERU where the sufficient level of technical expertise resides.

Recommendation #3:

Software Packages that allow the flexibility of both online /real-time and “offline” / asynchronous data entry methodologies are highly desirable in the OECS Member States where Internet Access and trouble-free connectivity are still not widely available.

Recommendation #4:

In a Client-Server environment with the central server located at the MOE or OERU, there must a sufficiently large connectivity bandwidth on the Internet line so as to allow simultaneous access by schools.

Recommendation #5:

If schools are to connect to the central server at the MOE/OERU, then a dedicated telephone line and Internet/Intranet access are both highly required. Moreover, a local area network (LAN) must be established linking computer systems in staff rooms, computer labs, principal's office and other rooms or offices, as the case may be.

Recommendation #6:

Human, technological and financial resources must be budgeted for to allow for the timely entry of all legacy data during the early stages of the implementation. Failure to input all required data in the systems could seriously hamper the implementation process.

Recommendation #7:

Ministries must make appropriate allowances (time, resources etc) for any high level of customization required prior to full implementation of any EMIS package particularly those developed outside of the region and in a non-English environment.

Recommendation #8:

The MOE must develop policy statements defining clear roles and responsibilities that would provide guidance and assign levels of accountability to all participants and stakeholders in the implementation, management, monitoring and evaluation of the EMIS process.

Recommendation #9:

Whereas the pilot process did not get to the point where several of the MOE- and school-based reports were generated from the Software, Member States should nonetheless, give strong consideration to including the Pilot Software package - GPI in their selection and evaluation of an EMIS package, on the basis of the following:

- i. Its robust client-server based software package with module (Class-Register) that allows routine task to be done off-line using any available computer.
- ii. Client/school-based computer requires very minimal processing power and infrequent upgrading.
- iii. It's offering of both online and "offline" data entry modalities, ideal for member states with high connectivity costs and problems.
- iv. Lower total cost of ownership than that of the various EMIS products on the market today.
- v. Software Company has a very large number of highly trained and experienced experts in education, software development and support.
- vi. Proven, powerful and easy-to-use software package.
- vii. Continuous upgrade of product by software vendor.
- viii. Software demonstrates potential to generate a significant percentage of the adopted List of OECS Education Indicators.
- ix. Based upon GRICS' response to ECERP's RFP the software satisfied approximately 95% of the required / specified EMIS functionalities.
- x. As a modularized software package GPI allows MOEs to acquire features/modules as the need arises thus permitting parallel movement between the cost of investment and the level of technology use in the education system.

Recommendation #10:

That the Ministry appoints an EMIS Coordinator to be located in the Planning Unit with a clear mandate to manage, monitor and coordinate all activities associated with the implementation of an EMIS project. Personnel appointed must demonstrate expertise in Project Management, Administration of MS SQL Server Software and Web-Applications Administration, to a lesser extent.

Recommendation #11:

That the Ministry establishes a Management Information System (MIS) Technical Advisory Committee (TAC) to oversee the implementation of all ICT projects including an EMIS project to be undertaken by the Ministry of Education.

Recommendation #12:

That the MOE appoints at least two “responsible” teachers under similar arrangements as Subject Heads (i.e. with fewer teaching periods) to coordinate and “champion” all school-based activities associated with the EMIS implementation and management. The responsibilities and duties of that individual must be clearly defined and endorsed by the Principal.

Recommendation #13:

That the OERU establishes one central EMIS server for the sub-region, which would result in a significantly lower Total Cost of Ownership (TCO) for the administration of EMIS application(s) and would easily facilitate the sub-regional analysis and reporting of educational indicators, adopted by the Ministries of Education of the sub-region.

Recommendation # 14:

Prior to and during an EMIS Project, significant resources must be expended toward the implementation of activities relating to Change Management and an Education Drive targeting all stakeholders. An EMIS must be seen as a technology tool that could have a positive impact on the management of information in our education system. Its successful implementation is guaranteed primarily by the ability and level of interest of the stakeholders to perform their various functions and duties.

In concluding, the Unit wishes to quote George Brackets in his book the *Digital Classroom*: “Technologies do not change schools in any sense worth talking about. Thoughtful, caring, capable people change schools, sometimes with the help of technology, sometimes not, and sometimes even despite it.” The OERU continues to view the implementation of a computerized EMIS as a necessary and an inevitable condition for the provision of reliable, accurate and timely education information for informed decision-making by Member States but acknowledges the process as a challenge to our Education System.

Appendices

Appendix A: GRICS Response (Part) to ECERP's Request for Proposal

MANDATORY CRITERIA – PART 2- General System Capabilities

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Additional background
M5	General EMIS Software Capabilities		
M5.1	Y2K compliant	1	
M5.2	GUI	1	
M5.3	ODBC compliant	1	
M5.4	Relational Database	1	Microsoft SQL 6.5
M5.5	On-line help	1	
M5.6	Uses variety of input mechanisms (on-line, internet, disk, etc.)	1	
M5.7	Data checking routines	1	
M5.8	School, board, district, national and multi-state rollups of data	1	
M5.9	Graphic Report Editor	1	
M5.10	File Search function (teacher, student etc.) according to multiple selection criteria	1	Uses open parameters and filters
M5.11	Possibility of adding and managing personalized data (i.e. user-defined fields) in all application tables.	1	
M5.12	Tools are included that allow the user to personalize the layouts, presentation windows, sequencing, selection and grouping of data	1	
M5.13	Management and consultation of historical data is facilitated	1	
M5.14	Process exists that eliminates obsolete data defined by the user	1	
M5.15	Procedure for the preparation of the next school year (reactivation of data)	1	

Level 1 Mandatory Criteria - Part 3 - EMIS Licensing and Support Features

Requirement #	Requirement Description	1) Part of the basic EMIS pricing 2) Part of a separately costed Supplemental pricing	Additional background
M6	Software Licensing and Support		
M6.1	Licensing Provision of a license which provides for ownership of the EMIS application software (not source code ownership).	1 While keeping intellectual property and legal right, the owner sells, to the client, a perpetual non-exclusive and non-transferable right to use, modify***, and copy, for his own use. The software in object form and to permit multiple use by his users without further restrictions	*** Notwithstanding the preceding, the warranty is not applicable to any defect caused by any modification or customization made by the client without acceptance by the owner as to the contents of such modifications, or non-adherence to the user guides or any other violation of contract modalities
M6.2	Software Maintenance Fee Provision of "OPTIONAL" upgrades and "OPTIONAL" on-line support (or equivalent) for the installed EMIS application following the warranty period. A mandatory maintenance fee, annual or otherwise, is not acceptable for customers in developing countries.	2	See Proposal Part B Section M4
M6.3	Warranty Provision of warranty support and upgrades for at least six months following initial installation of the software.	1	Included – To ensure maximum efficiency all calls should be passed through one person selected by the pilot island .
M6.4	Additional EMIS Maintenance Support Provide a proposal for the provision of "OPTIONAL" costed technical support for the installed EMIS application for a two-year period	2	See Proposal Part B Section M4

Level 1 Functionality – Part1 -Essential EMIS functionalities.

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Additional background
L1	Registration - Maintenance of Current Student data		
L1.1	Student name, age, gender, grade level, education level (primary, secondary, tertiary), nationality, religion, school, district	1	
L1.1.2	Parent(s) name (s)	1	
L1.1.3	Parent(s) contact information	1	
L1.1.4	Current and past home addresses / telephone number(s)	1	
L1.1.5	Previous education (what / where)	1	
L1.1.6	Level of education attained to date	1	
L1.1.7	Examination results	1	
L1.1.8	Achievements / awards	1	
L1.1.9	Special skills / assignments	1	
L1.1.10	Current grade level	1	

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Additional background
L1.1.11	Class types taken / enrolled	1	
L1.1.12	School dues / funds paid versus unpaid	1	GRICS will develop this module for the pilot with personal data field. The fees and school material activities Module, under development, will be provided at NO COST next year. See Appendix E for brochures.
L1.2	Student Attendance		
L1.2.1	Attendance and punctuality records	1	
L1.2.2	Alert on student XXth day absent	1	
L1.2.3	Records disciplinary interventions	1	
L1.2.4	Management of long term absences	1	
L1.2.5	Management of absence reasons / categories	1	
L1.3	Maintenance of Teacher data		
L1.3.1	Name, age, gender, grade level, education level (primary, secondary, tertiary), nationality, religion, school, district	1	
L1.3.2	Current and past home addresses / telephone number(s)	1	

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Additional background
L1.3.4	Class assignments and schedules	1	
L1.3.5	Teacher Qualification / Education (what / where)	1	
L1.3.6	Years of Service/Employment History	1	
L1.3.7	Teacher Attendance	1	
L1.4	Maintenance of Course Information		
L1.4.1	Enables school to run many tracks for students with variations	1	
L1.4.2	Management of required and optional courses	1	Part of Scheduling Module

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Additional background
L1.4.4	Scheduling		
L1.4.4.1	Time tabling of students, teachers, courses and rooms	1	Part of Scheduling Module
L1.4.4.2	Examination time tabling of students, courses, rooms and proctors.	1	Part of Final Examination Module, see Appendix FINALE brochure
L1.4.5	School Calendar Maintenance		
L1.4.5.1	Has ability to incorporate school calendars	1	
L1.4.5.2	Provides District and MOE access to individual and grouped school calendars	1	
L1.4.6	Health records		
L1.4.6.1	Health information - special medical conditions, medication, doctors name.	1	Data fields added by client

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Additional background
L1.4.7	Marks database and reporting component		
L1.4.7.1	Records student course progress in numeric, alpha and anecdotal marks.	1	
L1.4.8	Transcript reporting		
L1.4.8.1	Maintains information pertinent to school to be printed on report card.	1	
L1.4.8.2	Allows wide variety of time units, i.e. class, cycle, semester, year.	1	
L1.4.9	Security		
L1.4.9.1	A variety of levels of security levels which can be customized to user categories.	1	
L1.4.9.2	The system should allow only authorized personnel in individual Schools, Districts and MOE to view active records.	1	
L1.4.10	User Defined Fields - The ability for the user to define and report against user defined EMIS fields.	1	All personalized data can be viewed using GPI and reported using user-defined MS Access reports

Level 1 Functionality - Part 2 – Essential EMIS Reporting Capabilities

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Report generation conditions 1) Standard Report 2) User generated report or 3) Source code programming required	Additional Details
L1.4.11.	STUDENT ENROLMENT REPORTING			
L1.4.11.1	Pupil Admission (by age, grade level, male / female, school, district, MOE)	1	2	
L1.4.11.2	Pupil Withdrawal (by age, grade level, male / female, school, district, MOE)	1	2	
L1.4.11.3	Pupil Transfer (by age, grade level, male / female, school, district, MOE)	1	2	
L1.4.11.4	Intake Ratio (by age, grade level, male / female, school, district, MOE)	1	2	
L1.4.11.5	Transition Rate (by age, grade level, male / female, school, district, MOE)	1	2	
L1.4.12	STUDENT PARTICIPATION REPORTING			
L14.12.1	Class Size/Number (by age, grade level, male / female, school, district, MOE)	1	2	

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Report generation conditions 1) Standard Report 2) User generated report or 3) Source code programming required	Additional Details
L1.4.12.2	School Enrolment (by age, grade level, male / female, school, district, MOE)	1	2	
L1.4.12.3	Class Enrolment (by age, grade level, male / female, school, district, MOE)	1	2	
L1.4.12.4	Pupil Attendance /Attendance Rate (by age, grade level, male / female, school, district, MOE)	1	2	
L1.4.12.5	Gross/Net Enrolment (by age, grade level, male / female, school, district, MOE)	1	2	
L1.4.12.6	Compulsory Ratio (by age, grade level, male / female, school, district, MOE)	1	2	
L1.4.12.7	Graduation Rate (by age, grade level, male / female, school, district, MOE, country)	1	2	
L1.4.13	EDUCATIONAL EFFICIENCY REPORTING			
L1.4.13.1	Literacy Rate (by age, grade level, male / female, school, district, MOE, country)	1	2	

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Report generation conditions 1) Standard Report 2) User generated report or 3) Source code programming required	Additional Details
L1.4.13.2	Highest Education Attainment (by age, grade level, male / female, school, district, MOE, country)	1	2	
L1.4.13.3	Repetition Rate (by age, grade level, male / female, school, district, MOE, country)	1	2	
L1.4.13.4	Drop-out Rate (by age, grade level, male / female, school, district, MOE, country)	1	2	
L1.4.13.5	Truancy Rate (by age, grade level, male / female, school, district, MOE, country)	1	2	
L1.4.13.6	Transition to the world of work (by age, grade level, male / female, school, district, MOE, country)	1	2	
L1.4.13.7	School Performance at Standardised Tests (by age, grade level, male / female, school, district, MOE, country)	1	2	

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Report generation conditions 1) Standard Report 2) User generated report or 3) Source code programming required	Additional Details
L1.4.13.8	National Achievement Norms (by age, grade level, male / female, school, district, MOE, country)	1	2	
L1.4.13.9	School Performance at External Exams (by age, grade level, male / female, school, district, MOE, country)	1	2	
L1.4.13.10	Performance at external Examinations (by age, grade level, male / female, school, district, MOE, country)	1	2	
L1.4.13.11	Completion Rate (by age, grade level, male / female, school, district, MOE, country)	1	2	
L1.4.14	Summary Staffing Report		2	
L1.4.14.1	Teaching Experience (by male / female, school, district, MOE, country)	1	2	
L1.4.14.2	Staff Qualification (by male / female, school, district, MOE, country)	1	2	

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Report generation conditions 1) Standard Report 2) User generated report or 3) Source code programming required	Additional Details
L1.4.14.3	Staff Allocation (by male / female, school, district, MOE, country)	1	2	
L1.4.14.4	Staff Placement (by male / female, school, district, MOE, country)	1	2	
L1.4.14.5	Teacher Attrition Rate (by male / female, school, district, MOE, country)	1	2	
L1.4.14.6	Teacher Attendance Rate (by male / female, school, district, MOE, country)	1	2	
L1.4.14.7	Teacher Pupil Ratio	1	2	
L1.4.14.8	Frequency of Training	1	2	
L1.4.14.9	Teacher Contact Hours/ Teaching Loads	1	2	

Level 2 Functionality – (not mandatory but important. Subject to point score evaluation.)

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Additional details
L2	Facilities Data Management Reporting		
L2.1	Maintenance Schedule (by school, district, MOE)	1	Data fields added by client
L2.2	Equipment Inventory (by school, district, MOE)	1	GRICS will develop this module for the pilot with personal data field. The fees and school material activities Module, under development, will be provided at NO COST next year
L2.3	Physical Condition of School Buildings (by school, district, MOE)	1	
L2.4	Sanitary Facilities (by male / female, school, district, MOE)	1	
L2.5	Playground Facilities (by school, district, MOE)	1	
L2.6	Physical Condition of School Infrastructure-Lab etc (by school, district, MOE)	1	
L2.7	Library Facilities (by school, district, MOE)	1	
L2.8	Allocation of Instructional Material (by school, district, MOE)	1	Available next year in Fees and school material activities

Level 3 Functionality (not mandatory but desired).

Requirement #	Requirement Description	1) Part of the basic EMIS package 2) Part of a separately costed Supplemental module	Additional Details
L3.1	Produce Student ID cards	1	See PHOTOTECH brochure attached. Appendix E
L3.2	Interfaces with other school or district systems	1	ODBC links
L3.3	Library Management software	2	See REGARD. Appendix E
L3.4	Transportation	2	See GEOBUS brochure attached Appendix E
L3.5	Accounting	2	See DOFIN brochure attached Appendix E
L3.6	Facilities management	2	See LUDIC brochure attached Appendix E
L3.7	Email	1	
L3.8	Scanner interface for data entry	1	
L3.9	Accessible from home by parents on a limited and secure basis	1	
L3.10	Multi-calendaring, scheduling and Progress (report card) reporting	1	
L3.11	Attendance can be taken at the classroom level over LAN	1	

Level 4 Additional significant EMIS functionalities that you proposed product offers but are not included above.

Requirement #	Requirement Description	1) Part of the basic EMIS pricing 2) Part of a separately costed Supplemental pricing	Additional Details
L4	Exam preparation, correction and analysis	1	See DOCIMO brochure attached Appendix E
L4.1	Exam data bank	2	See BIM brochure attached Appendix E

Appendix B: Summary of Comments by Participants at EMIS Conference

The Following tables illustrate a summary of comments by participants (for two of the Software Packages) at the EMIS Conference in Grenada April 21 – 23, 1999.

1. Data Capture

GPI/GRICS	Win School/ Chancery
Satisfactory	Satisfactory
It makes use of a variety of input mechanisms thus the user has a choice	Has the capability to input data via various input mechanisms
Yes very integrated	Yes
User friendly- flexibility in the modes of input was very good and allowed for easier data entry	Data capture on students is good
Allowed input from a variety of mechanisms	It utilises a variety of mechanisms
Software made use of a variety of input mechanism	Very good use was made of a variety of input mechanisms quite impressive
Makes allowance for varied methods of data capture	Data capture options limited - No diskette
Like the possibility of using a variety of input mechanisms	Data capture makes use of a variety of input mechanisms mainly the Internet or web browser type interface
Data input options seem very flexible Would have liked more discussion on data conversion	-

2. Data Reporting

GPI/GRICS	Win School/ Chancery
Examples of educational Indicators should have been demonstrated	Some key educational indicators were not included in the standard reporting
Seems capable of producing the required reports although it was not a thorough demonstration	Seems capable of producing the required reports based on the demonstrations
Yes addresses all categories	Focuses mainly on weak area s A proper way of getting a report from the data was not shown
On Students is excellent but other aspects not	

GPI/GRICS	Win School/ Chancery
Data reporting for students and teachers well demonstrated While the ability to produce indicators was mentioned the product was not seen	The production of education indicators was not emphasises as a feature of the software
wide coverage of data	great very efficient
system allows for generation of various reports individualised teacher / student specific reports generalised reports	Adequate for Level 1 reporting inadequate for level 2
Reports may not be very user friendly in our context although it was indicated that these can be customises to suit needs	Very user friendly student and teacher reports
Variety of options available Use of filters was god	Reports are attractive but I did not see much in the area of educational indicators

3. Security

GPI/GRICS	Win School/ Chancery
Satisfactory	Satisfactory
Offers security at different user levels	Security is available at different user levels
The level of security might be good but it may not be because it is centralised	School based good but otherwise not good
The security system quite impressive	The security system was evidently in place
Seems satisfactory	Quite satisfactory
Appropriate security measures at different user levels	Adequate security measures
Security levels indicated should prevent unauthorised access and ensure data integrity	Security levels indicated should prevent unauthorised access and ensure data integrity
Security options are adequate	Options seem adequate

4. User Friendliness

GPI/GRICS	Win School/ Chancery
Good	Good
System is very user friendly ...It should be easy for new users	System is user friendly the pull down menus are easy to use and it is easy to move from one field to the next.
Very User friendly Easy access from field to field	User friendly very detailed easy access
Seems very good	Very user friendly easy to understand
Extremely user friendly	Extremely user friendly is advantageous for 1 st time users
User friendly bears good relationship with windows 95 thereby allowing for easy transfer of knowledge	Extremely user friendly excellent
User friendly builds on Windows 95 graphical user interface	User friendly
Programme is user friendly the interface is the common graphical user interface familiar to users of windows environment / access	Extremely user friendly standard windows interface which is familiar to most computer users and use of short cuts
Would be easy for a windows user to manipulate	Would be easy for a Windows user to manipulate

5. Visual Layout

GPI/GRICS	Win School/ Chancery
Good	Good
I found it very helpful that the user Has access to different screens at the same time	The visual layout is clear and easy to read
Excellent layout Allow for viewing multiple fields at one time	Very good layout
Very good Colour was sharp and clear and images were realistic	Excellent
Satisfactory Quite good	Excellent
Provides flexibility in layout	Could be more flexible

GPI/GRICS	Win School/ Chancery
Visual layout quite clear highlighting of key areas quite good and possibility of multiple windows for different operations	Layout quite pleasing and flexible screens can be easily reorganised to suit users tastes
Colours were boring Screens presented were crowded	Layout more attractive Fairly good use made of colour

6. User Customisation

GPI/GRICS	Win School/ Chancery
Very impressive	Satisfactory
There seems to be great opportunity for customising the system to individual needs	There is scope for customising
Can be flexible and adaptable to customers needs at all levels	Excellent customisation demonstrated at school and district levels
Strongest point	Only school based
Shows great flexibility to customise in all areas that are important to us	Not as flexible as desired Too many additional software packages required
Quite adaptable	Allows for considerable customisation
Can be easily adapted to needs of schools institutions etc	Can be easily adapted to meet individualised user needs
At the level of the table users can customise fields displayed to suit needs	Layout of data entry and data displays could be easily displayed at the level of the end user
Very Flexible	Seems more canned

7. Other Comments

GPI/GRICS	Win School/ Chancery
Ability to utilise different firm for hardware implementation is a concern Timetabling functionality is important for secondary and tertiary levels.	Aggregate and summary information for planners is lacking
The system seems like a very good one which may be suited to our individual/ collective needs	Although there were some components missing in the presentation eg inventory level 2 functionalities there seems to be the capability to provide these features to make it suitable for our individual/ collective needs
Hardware not sufficiently dried and tested need to build summaries at various levels Schools become data driven strong support for customers Forces principals to re-examine their attitudes towards use of data	Very strong emphasis on the site level and linkages to district Appears to need many different software
More should have been said on managing data rather than how to input it	Package is a student based module its usefulness for teachers information accounting information and information at the district level beyond the school is non existent
Impressed by the presentation in particular education experiences support services and willingness to listen to concerns and present possible solutions The presentation on BackNet Server was also impressive.	Too many software ware extras Not as flexible as Vendor 2 Large hardware required to achieve some process as Vendor 2
Appears to be a helpful tool for use in EMIS	Very impressive
Not tested and proven over a long period	Too many different applications
Facilities for Backup and data security seem to be adequate 100% redundancy of software access on serves is a good idea	Maintenance of hardware/ servers is still an open question there is no commitment to service hardware
BackNet concept was appealing except for the possibility of localised power failure or disaster - all eggs in one basket Would have liked to have had a more extension demonstration data entry reporting data rollover Would have liked to know more about how access to specific student records is controlled if student moves from one institution to another How can this be integrated with existing systems Overall would have liked more product demonstration	Product life seems short if they anticipate 2 upgrades per year. Could become a difficult situation if maintenance option is not universally selected in OECS

Appendix C: Proposed GPI Implementation Costing (as of 2000)

Cost (CND\$) Internal to MOE				EMIS Specific Costs (CND \$)				
OECS Member States	5. Entry of Legacy Data (LOE)	7. Internal Institutional Development (LOE)	MOE Sub Total	3. GPI BackNet Server (Hardware/ Software)	4. GPI Software License	6. External Institutional Development (Labour, Travel & Living)	EMIS Sub Total (CND\$)	Total Cost (CND\$)
Anguilla	\$2,261	\$32,500	\$34,761	\$16,000	\$19,100	\$200,000	\$235,100	\$269,861
Antigua & Barbuda	\$11,508	\$50,000	\$61,508	\$16,000	\$56,326	\$200,000	\$272,326	\$333,834
British Virgin Islands	\$4,007	\$32,500	\$36,507	\$16,000	\$26,132	\$200,000	\$242,132	\$278,639
Dominica	\$16,936	\$50,000	\$66,936	\$16,000	\$78,177	\$200,000	\$294,177	\$361,112
Grenada	\$26,908	\$85,000	\$111,908	\$20,000	\$118,318	\$200,000	\$338,318	\$450,226
Montserrat	\$1,682	\$32,500	\$34,182	\$16,000	\$16,773	\$200,000	\$232,773	\$266,955
St. Kitts & Nevis	\$10,068	\$50,000	\$60,068	\$16,000	\$50,530	\$200,000	\$266,530	\$326,598
St. Lucia	\$38,817	\$85,000	\$123,817	\$20,000	\$166,261	\$200,000	\$386,261	\$510,078
St. Vincent & Grenadines	\$27,702	\$85,000	\$112,702	\$20,000	\$121,517	\$200,000	\$341,517	\$454,219
OERU	\$0	\$20,000	\$20,000	\$16,000	35,000 \$	\$30,000	\$81,000	\$101,000
Total	\$139,889	\$522,500	\$662,389	\$172,000	\$688,133	\$1,830,000	\$2,690,133	\$3,352,522

NB: GPI Licensing Costs are based upon approximate student enrolment figures.