

MINISTRY PAPER No.: _____

**PERFORMANCE OF E-LEARNING COMPANY JAMAICA LTD. FOR
FINANCIAL YEAR 2006/2007 AND FOCUS FOR FINANCIAL YEAR 2007/2008**

1.0 Purpose of Ministry Paper

The purpose of this Ministry Paper is to inform Parliament and the public about the performance of the e-Learning Project during Financial Year 2006/2007 and its main focus for Financial Year 2007/2008.

2.0 Project Justification

The current position of the Ministry of Industry, Technology, Energy and Commerce (MITEC) is that Jamaica has achieved practical universal access in voice telephony, with a penetration rate of some eighty two percent (82%). Against this background, the Ministry strategically shifted its emphasis from voice telephony to universal broadband access and use of data and data-related services through the Internet. Such access and usage are features of educated, knowledge-based and by extension, competitive, societies. However, given the relatively low level of education in Jamaica, the demand for Internet access and data-related services is low compared to that of the developed countries and compared to even some Caribbean countries.

MITEC is convinced that in order to increase demand for access to data and data-related telecommunication services and create a knowledge-based society which is competitive regionally and internationally, the educational level of the society must first be raised. Accordingly, MITEC is collaborating with the Ministry of Education and Youth to provide targeted support to the education sector with emphasis on increasing the number and quality of CXC/CSEC passes. MITEC is convinced that by improving the quality of education and increasing the use of the Internet by students in schools, demand by them for the Internet and data-related services will be stimulated, translating into wider and more intensive usage at the household level.

3.0 Project Development Process

Recognizing the potential of Information and Communication Technology (ICT) to enhance the education sector, the Ministry in early 2002 initiated discussions with the International Telecommunication Union (ITU), with a view to the ITU supporting a Jamaican project that would draw on ICT to improve the quality of education in schools and increase access to education by the out-of-school population. Following discussions and the concurrence of the Education Minister in December 2003, a memorandum of understanding (MOU) was signed between MITEC and the

ITU. The MOU proposed an intervention involving the use of ICT to support the education sector.

The Minister of Education, Youth and Culture took the policy decision that in light of several other computer-related interventions then taking place in the primary and basic schools by various stakeholders, the project should focus exclusively on improving the quality of education in the high schools with the objective of increasing passes at the CXC/CSEC level in the long run. This policy directive guided the design and preparation of the feasibility study for the e-Learning Project.

Following the signing of the MOU with the ITU, MITEC, in collaboration with the Ministry of Education, Youth and Culture, conducted research into the challenges being faced by the education sector and developed a draft Feasibility Study for the e-Learning Project. A local consulting firm was contracted to undertake wide consultation among stakeholders and to obtain feedback on the draft Feasibility Study. The Permanent Secretary in the Ministry of Education, Youth and Culture coordinated an extensive consultation exercise involving the various arms of the Ministry of Education, Youth and Culture and the education agencies to get feedback. The ITU also engaged independent overseas consultants who conducted an independent appraisal of the draft Feasibility Study. The consultants confirmed that the design of the project in terms of its various components and the proposed interventions were sound. Based on the feedback from the local consulting firm and the ITU's independent consultants, MITEC prepared the final version of the Feasibility Study for the e-Learning Project.

The resulting e-Learning Project is therefore a comprehensive and integrated education initiative with an information and communications technology orientation to address certain specific weaknesses at the high school level. The Project benefited from wide consultation within the educational sector.

Based on the Feasibility Study, the project budget is US\$50 million to be funded from the Universal Access Fund. The policy of the Government is that funding for the e-Learning Project would meet the universal access obligations of the telecommunications companies.

Following completion of the Feasibility Study, MITEC and the MOEYC made a joint submission in March 2005 to Cabinet for the implementation of the project. Cabinet approve the project and for it to be funded by the Universal Access Fund. The project constitutes the priority project of Government to be funded from the Universal Access Fund. Once the financing needs of this project are met, Cabinet will consider other projects to be funded by the Universal Access Fund.

Cabinet also approved the incorporation of a limited liability company known as "e-Learning Jamaica Company Limited" (e-LJam) which would be the implementation arm of the Universal Access Fund. e-LJam, which was incorporated on July 6, 2005, is a portfolio agency of MITEC with an initial mandate to implement the e-

Learning Project in close collaboration with the Ministry of Education and Youth (MOEY). At the end of the project, e-LJam will shift its attention to the implementation of other universal access-type projects in the telecommunications sector.

4.0 Description of Project Components

4.1 Project Goal

The primary goal of the Project is to contribute to an improvement in the quality of education between Grades 7-11 (Forms 1-5) in the one hundred and seventy-two (172) secondary, technical, agricultural and special high schools island-wide.

4.2 Specific Constraints

The Project is intended to address five (5) specific constraints which adversely affect the quality of education in the targeted schools (other constraints inhibiting the quality of education in the schools will be addressed through additional initiatives of the MOEY. The five (5) constraints identified are as follows:

- (i) lack of a comprehensive set of standard instructional materials for both teachers (especially young and inexperienced teachers) and students
- (ii) inadequate equipment to facilitate/enhance teaching and learning using modern technologies, and lack of a proper Educational Management Information System (EMIS) in the MOEY to facilitate effective administration of the education sector
- (iii) low level of skills among some teachers in the use of certain technologies such as interactive software for teaching “hard to grasp” topics and in stimulating interest among students, especially boys
- (iv) an inadequate remedial programme at Grade 7 to enable weak students who have been promoted from Grade 6 to high school to cope with high school work. This is especially so among the newly upgraded high schools.
- (v) lack of a standard system of measuring and tracking the performance of students at each grade so that timely remedial action can be taken before it is too late when the students reach Grade 11, and absence of a common yardstick for measuring the performance of teachers and schools so that shortcomings can be addressed and exceptional achievement rewarded

4.3 Project Objectives

The project objectives, which are intended to have a counteractive effect on the above constraints, are as follows:

- (i) to provide a comprehensive set of standard digital instructional materials for teachers (especially the young and inexperienced teachers) and students, as well as subject tutors in the institutions that train teachers, in eleven (11) subject areas (listed below);
- (ii) to provide modern technology to the education system that would involve:
 - a. providing equipment and software to schools to enhance teaching and learning using modern technologies
 - b. establishing a Central Repository for Educational Materials (CREM) at the MOEY to manage the storage and dissemination of the materials
 - c. supporting the installation of an Educational Management Information System (EMIS) in the MOEY to facilitate effective administration of the education sector
 - d. arranging for the transmission of lesson videos through cable television
- (iii) to train teachers in the use of certain technologies such as interactive software in the teaching of “hard to grasp” topics and to stimulate interest among students, especially boys;
- (iv) to institute in the high schools, an extensive remedial programme based on volunteerism
- (v) to institute a standard Pre-CXC Examination that will measure performance of students in each grade from 7 through 10 so that early corrective action can be taken.

4.4 Project Components

The project consists of five (5) components which are intended to address the five (5) specific constraints and are aligned to the five (5) objectives indicated above.

(a) Development of Instructional Materials

This component involves the development of a detailed and comprehensive set of instructional materials in digital format for teachers and students in eleven (11) designated subjects taught in grades 7 through 11. The subjects decided on in consultation with the schools are:

- (i) English Language
- (ii) Mathematics
- (iii) Social Studies
- (iv) Integrated Science

- (v) Resource & Technology/Information Technology
- (vi) Spanish
- (vii) Geography
- (viii) Building Technology
- (ix) Chemistry
- (x) Biology
- (xi) Physics

It is envisaged that depending on resource availability, other subjects will be incorporated in future.

This is a major undertaking and is the most important and involved component of the Project. The materials will include the development of the following for the eleven (11) subjects at the five (5) grades:

- (i) Teachers' Instructional Manuals (TIM's) - These will be developed on a modular/unit basis and include comprehensive content, suggested local/international best practice teaching methodologies for each topic, and recommended best practice assignments and projects. The TIM for a particular grade would have a suggested set of student activities/assignments/projects on a topic basis drawing on extensive national and international best practices. For each subject at a particular grade, there would be a recommended timetable with due dates regarding each activity/assignment/project. Hence, at the start of the academic year, each student would be aware of the assignments/projects and due dates in a manner similar to those for the school-based assessment (SBA) for CXC/CSEC. It is envisaged that through carefully selected activities/assignments/projects, Jamaican students will be assured the highest quality "hands-on" learning experiences similar to those afforded students in developed countries. It is also intended to shift the learning focus away from the abstract and more toward the practical and student-centered learning. The TIM's will be in digital format to facilitate easy modification by teachers to suit their personal tastes and preferences.
- (ii) Students' Instructional Manuals (SIMs) mirroring the TIMs. The SIM will act as the core text for the student and will comprehensively cover the syllabus topics. The schools will continue to rent textbooks to students to complement the SIMs and to provide variety and reference.
- (iii) The project will identify interactive computer software with emphasis initially on free computer software (freeware) that is available on the Internet, to support the teaching of selected "hard to grasp" topics or for reinforcement and effective internalization by students. Where necessary, software will be purchased and or developed. In the case of the sciences (chemistry, physics and biology), interactive software

will be acquired/developed in support of and to complement laboratory work.

- (iv) A comprehensive video lecture series on a topic-by-topic basis delivered by master teachers, for all eleven (11) subjects for the five (5) grades will be developed. These lecture videos will also be available for students to borrow through school libraries or purchase for viewing at their convenience to reinforce and or clarify classroom instructions. There will also be high quality video recordings of a comprehensive set of lab procedures/experiments to buttress laboratory teaching in chemistry, physics and biology.
- (v) An extensive database (Item Bank/Question Bank) of questions and answers (including multiple choice questions and structured questions) on a topic-by-topic basis for each subject at each grade will be developed. All information will be stored in an electronic database and be accessible to teachers and students via schools' intranets. The technology will facilitate teachers accessing questions and answers on a random basis and setting/marking tests with relative ease. Following the presentation of a topic, students will also be able to do self tests at home and obtain real time results. This will facilitate easy continuous assessment throughout the school year.

The MOEY will own the copyright to all materials developed so that schools, students and the public can reproduce them at will. The MOEY will also have responsibility for updating the materials at intervals.

(b) Equipment/Technologies

- (i) The Project will provide computers, workstations, and a local area network (LAN) in each school to support teaching of all eleven (11) subjects. Schools will be equipped with multi-media projectors and other curriculum delivery equipment to facilitate interactive presentations by teachers and all schools will be connected to the Internet.
- (ii) The eight (8) educational institutions that train high school teachers will also be equipped with computers and multimedia equipment.
- (iii) Support will be provided for the establishment of the CREM and implementation of the EMIS at the MOEY
- (iv) Support will also be provided for the interactive education television station known as "Edu-TV" being established by the MOEY. This facility will provide access to a range of educational content.

- (v) Arrangements will be made for some twelve (12) cable television channels to be dedicated to the transmission of the lesson series cited above. Each channel will be dedicated to the transmission of lesson series for one (1) or two (2) subjects. The given channel, which would transmit content continuously, would serve to enhance the promotion and development of that particular subject. Centre-of-excellence teachers in the subject will be featured, making use of local and international best practices in the teaching of the particular subject. Companies will be invited to sponsor the operating costs of the channels for possibly a two-year period. Companies will advertise their products on the channels and associate themselves with the development and promotion of particular subjects.
- (vi) It is also envisaged that teachers will be supported to acquire their own modern teaching technologies to enhance their effectiveness.

(c) Teacher Training

The e-Learning Project will provide all teachers in the targeted high schools and subject lecturers from the targeted teacher training institutions with an orientation to the new instructional materials (TIMs and SIMs). Teachers will also be trained and certified in ICT and will be trained in the use of these modern technologies in instructional delivery.

(d) Remedial Programme

The Project will identify and support existing remedial programmes and collaborate in enhancing these programmes to strengthen the effort of teachers, particularly with the use of ICT's such as interactive software and specialized equipment for the visually and hearing impaired and those with limited mobility.

This component of the Project will also serve to operationalize an extensive Values and Attitudes Programme being considered for implementation in the school system. The programme will involve students being graded for their values and attitudes, with these grades being recorded on their transcripts and having a bearing on their employment prospects. Government agencies and the private sector will be asked to take the values and attitudes grades into consideration when assessing graduates for employment, in effect making the values and attitudes training in schools as important as the academic aspect of education.

(e) Performance Measurement - Voluntary End-of-Year Pre-CXC Exam

The project will institute on a voluntary and phased basis, a standard end-of-year Pre-CXC Examination in the eleven (11) subjects, to measure performance/progress of students. The Exam will be set at two levels (Level 1 and Level 2) for each grade and a school will decide which level each student should sit. This examination will be administered at grades 7 through 10. Students will sit the usual CXC/CSEC

Examinations at Grade 11 and the plan is to have more students sitting the CXC/CSEC at Grade 11 and getting better grades than is currently happening. Through the Pre-CXC/CSEC exams between Grades 7-10, students will be trained to lift their standard so that they can excel in the CXC/CSEC at Grade 11. CXC will prepare the Pre-CXC Exam papers but the scripts will be marked by the schools. Teachers will be trained by CXC to mark the papers, thereby facilitating the comparison of all high schools using a common yardstick. It should be noted that the Pre-CXC/CSEC Exam will be the primary means of measuring the impact of the project on the quality of education in the high schools. To determine any incremental improvements, which in part, could be attributed to the project, a benchmark survey will be done.

The Pre-CXC/CSEC Examination will facilitate early identification of academic deficiencies within and across schools so that timely affirmative action can be taken before the students are scheduled to sit the CXC exams in Grade 11. Affirmative action could mean the implementation of extensive remedial work among schools with higher ratios of weak students, and the provision of proportionally more resources to those schools to assist them in improving performance.

At the focus group stage of the consultative process, the standard Pre-CXC Examination found support among the schools, although there is some preference for phased implementation in terms of the level, to allow for time to bring targeted students up to the national level. Schools will therefore have the option of conducting the exam and deciding on the level at which papers are set. Initially it is envisaged that schools with students at the same academic level will partner in the setting of their exam papers under the guidance of the CXC. By the end of the Project it is anticipated that all schools will do the standard examination set by the CXC to facilitate proper measurement and comparison of performance across all high schools.

5.0 Project Implementation

e-LJam now has its essential human resources in place and implementation of project activities is currently being accelerated. The Project is being implemented in three (3) phases, with the first year accommodating a pilot phase involving thirty one (31) institutions consisting of twenty-seven (27) public high schools (including one (1) special school), one (1) independent high school and three (3) teachers colleges. The other targeted institutions will be addressed in the subsequent years. Experiences from the pilot phase will inform and help guide the second phase.

The Phase 1 Pilot commenced in September 2006 and will run to June 2007. This pilot focuses on five (5) subjects in grades 10 and 11; the pilot subjects are:

- English Language
- Mathematics
- Chemistry
- Biology

- Information Technology

Of the five (5) components of the Project, implementation commenced on four (4) components as follows:

- (a) Provision of technology to MOEYC and to the schools
- (b) Development of instructional materials
- (c) Teacher training
- (d) Performance Measurement

Below is a summary/status of achievements.

(a) Provision of Technology to MOEYC and Schools

(i) Provision of Technology Support to the Ministry of Education and Youth

This was the first element of the project supported. Through funding provided by the Technology Investment Fund, J\$50 million was provided to acquire needed computers for the MOEY. The equipment have been procured and installed in the Ministry and has alleviated some of the earlier constraints.

(ii) Establishment of Central Repository for Education Materials (CREM)

The MOEY has identified the physical location for the CREM and facilities are now being prepared to accommodate the computer installation. The equipment for the CREM and supporting technologies, which will total approximately \$65 million, is now being procured along with the computers for the schools. This will be a major installation to support the electronic access by the school system of educational materials in the Repository.

(iii) Technology Support for Schools

The tender documents for procurement of computers for the schools have been prepared and bids invited. Bids were evaluated and submissions made to the National Contracts Commission (NCC) and Cabinet. The contract was approved by the NCC and Cabinet. However, arising from protest by one of the bidders, and consistent with standard procurement guidelines, the matter was referred to the NCC for a determination. A directive is expected shortly. This is the largest contract package amounting to over J\$900 million. Once this matter is resolved, there will be significant acceleration in the implementation of this contract package.

(iv) Computer Network Systems in Schools

Tender documents for the installation of computer networks in schools were prepared. This contract includes network installations in the schools, installation of air conditioning units, and installation of uninterrupted power supply systems. Bids

were invited, received and evaluated. Recommendations were made to the NCC and Cabinet and the contract was approved. However, in finalizing the contract, certain difficulties were experienced and the matter was referred to the NCC for guidance. The NCC has now provided guidance and the contract is being signed. This contract will amount to over J\$670 million. Work is scheduled to commence very shortly.

(v) Preparation of Physical Facilities in Schools for Computers

The MOEY is now actively preparing the physical facilities in the schools to accommodate the computers. The work involves refurbishing the accommodation for the computers, grilling, installing proper power supplies, etc. e-LJam is providing project management services to accelerate the refurbishment of the facilities so that the schools will have the necessary receiving capacity when the computers arrive.

(vi) Teaching/Learning Technologies

Tender documents were prepared for a comprehensive package of teaching and learning (audio-visual) equipment for the schools. These include multi-media projectors, screens, document cameras, etc. The bids were invited and evaluated. Submission was made to the NCC and Cabinet. This contract which totaled approximately \$160 million contract was approved and awarded. The supplier is now supplying these equipment to the schools. Teachers have been trained in the use of these equipment and they are now being used in the pilot schools to enhance and enrich the teaching and learning.

(vii) Furniture for Computers.

Tender documents have been prepared for the procurement of computer desks and chairs for all schools. Bids have been invited, evaluated and submissions made to the NCC and Cabinet. This contract, which was for over \$50 million, was approved by Cabinet and awarded. The contractor is now in the process of performing the contract.

(b) Development of Instructional Materials

(i) Item Bank Development

- A consultant was contracted to provide advice and guidance on the computer software for the Item Bank.
- The consultant assessed various software, provided advice and is providing a temporary framework for capturing items for the Item Bank. Based on the advice of the consultant, an appropriate computer software for the Item Bank will be procured.

- Over 1,300 questions have been prepared and accepted for inclusion in the Item Bank. Items are being incorporated into a database.

(ii) Development of TIMs and SIMs

Bidding documents are now being prepared to contract publishers and writers of instructional materials to develop SIMs and TIMs in the five subject areas mentioned earlier. Contractors will include local teachers and subject specialist who are capable of developing high quality materials. The plan is not to develop materials from start but instead to contract with owners of high quality materials. Each contractor will modify their existing materials to meet clearly defined technical specifications. The MOEY will own the intellectual property rights to the version provided under the contract. Teachers will have the flexibility to modify the materials and both teachers and students will have the flexibility to reproduce as needed.

Subject specialists have been engaged to interface with the developers of the materials to ensure that the technical specifications, standards and quality of the materials are rigorously met.

Once the materials are developed, they will be reproduced and provided to the pilot schools for testing. Comments will be obtained and the materials finalized, and provided to all high schools on CDs, DVDs and other electronic media. The materials will also be placed on the Internet in due course for easy access and updating.

A critical policy decision of this project is to acquire only materials for which the MOEY will have intellectual property rights. The MOEY will continue to procure materials for the school system protected by copyrights. Such acquisition will be an on-going exercise by the MOEY.

(iii) Lessons Series

Bidding documents for fifty (50) video lessons (10 per subject) have been prepared and bids invited. Bids were evaluated and contracts awarded to two contractors totaling over \$12 million to develop the lessons. The focus will be on difficult and “hard to grasp” topics as identified in reports on the CXC results over the years. The focus will be on CXC grades (grades 10 and 11) in order to enable the students in these grades to benefit from the lesson series before they exit the school system.

(c) Teacher Training

- Approximately 300 teachers from the pilot schools have been trained in the preparation of items/questions for the Item Bank for the first five (5) subjects.

Teachers have also been trained in teaching methods with a technology orientation.

- Bids for provision of ICT training and certification have been evaluated and a recommendation for a service provider in this area is to be submitted to the National Contracts Commission (NCC) and Cabinet for approval. Some two thousand (2,000) teachers will be trained and certified by the end of Phase 1.

(d) Performance Measurement

(i) Baseline Survey

A baseline survey intended to establish academic performance of the pilot schools without the project will be carried shortly. This will enable the measurement of any incremental improvement in academic performance of the schools which could be attributable, in part, to the project. The survey will also evaluate other factors and variables to inform implementation of Phase 2.

Terms of reference have been prepared and bids invited. Evaluation of the bidding documents is now being done. The target is to complete the survey between July and August 2007.

6.0 The Way Forward

The implementation of the project started off slowly and was unable to draw down the funds from the Universal Access Fund at the anticipated rate. This was due, in part, to the time taken to develop tenders and go through the normal procurement process. That situation is now behind us and the project will now be drawing down funds at a faster rate. Contracts already awarded or to be awarded shortly will total close to J\$2 billion.

The focus of the project will shift shortly from the preparation of tender documents and award of contracts to supervision of contractors and project monitoring and control.

Phillip Paulwell
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