



**REPORT  
ON  
POST-IMPLEMENTATION BENEFITS  
STUDY OF  
MINISTRY OF EDUCATION (MoE)  
SCHOOL LAPTOP PROGRAMME**

**For the period May 2012 to September 2016**

**Prepared by**

**OFFICE OF THE AUDITOR GENERAL  
BRADES, MONTSERRAT  
DECEMBER 2018**

**POST  
IMPLEMENTATION  
BENEFITS STUDY –  
MINISTRY OF  
EDUCATION SCHOOL  
LAPTOP PROGRAMME**

This is a Report of an IT  
Audit conducted and  
report prepared in  
accordance with Section  
103 of the Montserrat  
Constitution Order 2010

Florence A Lee  
Auditor General  
Office of the Auditor  
General  
14 December 2018

## **PREAMBLE**

### **Vision Statement**

“To be a proactive Supreme Audit Institution that helps the nation make good use of its resources.”

### **Mission Statement**

“The O.A.G is the national authority on public sector auditing issues and is focused on assessing performance and promoting accountability, transparency and improved stewardship in managing public resources by conducting independent and objective reviews of the accounts and operations of central government and statutory agencies; providing advice; and submitting timely Reports to Accounting Officers and the Legislative Assembly.”

### **The Goal**

“To promote staff development, enhance productivity, and maintain a high standard of auditing and accounting in the public sector, thereby contributing to the general efficiency and effectiveness of public finance management.”

## AUDITOR GENERAL'S OVERVIEW

In recent years, the Government of Montserrat (GoM) has been focusing on the use of Information Technology to drive its modernisation plan across the Public Service. With this in mind, the GoM through the Ministry of Education commenced the School Laptop Program as part of the National ICT Strategy. Our review was to assess and determine if the GoM's Strategic Thrust 1 of Enhancing the education experience and its effectiveness through formal and informal channels, i.e. School Laptop Program, was fulfilled.

Our review revealed that the contract with LIME has not been terminated although the Laptop Program has been shelved by the current government. We found that LIME was responsible for collecting payments and accumulating funds for future procurement. Due to the cessation of the programme, these funds should be recouped by the Ministry of Education.

We have concluded that the initiative was a good decision but was unsuccessful as a result of (i) the majority of the laptops was faulty/defective, (ii) Wi-Fi bandwidth was insufficient, (iii) the students' blatant ill-treatment of the laptops, misuse of Wi-Fi access and, (iv) administrative issues within, and between, both MoE and LIME.

Overall, the program did not achieve the benefits that fell under the overarching ICT Policy Objective. Thus, we have made a number of recommendations relating to the conclusion of the programme and guidance should there be a reinstatement of such initiative.

We wish to record our thanks to all Staff within the Ministry of Education who provided information, clarifications or courtesies extended during the course of this audit. We look forward to the same as we continue to strive to promote accountability, transparency and improved stewardship in managing public resources.



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14 December 2018

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## EXECUTIVE SUMMARY

### BACKGROUND

The former Government, via the Ministry of Education (MoE), was keen to create a modern teaching and learning environment at the local educational institutions. Access to ICT services is essential as it has the potential to provide a platform from which more educational resources can be accessed and shared. Hence, the MoE School Laptop Programme began in 2012 as a part of the National ICT Strategy as a policy decision by the GoM.

### OBJECTIVES

The main purpose of this Post-Implementation Benefits review, is to assess and determine if the GoM's *Strategic Thrust 1* of Enhancing the education experience and its effectiveness through formal and informal channels, i.e. School Laptop Programme, was fulfilled.

### FINDINGS

#### A. GOVERNMENT OF MONTSERRAT (GoM)

1. The MSS Laptop programme was discontinued by the current elected government that came into power in 2014.

#### B. MINISTRY OF EDUCATION (MoE)

2. The contract with LIME has not been terminated although the Laptop Programme has been shelved by the current government.
3. The MoE have been on occasion tardy in confirming and/or providing required information to LIME, causing minor delays.

#### Montserrat Secondary School (MSS)

4. Students/parents did not observe the computer tips, provided by LIME
5. Students did not handle and/or convey the laptops around with due care, thus resulting in the reduction of the unit life or caused equipment failure.
6. Damaged screens were not covered by the manufacturer's warranty and parents chose not to cover the repair cost and refused even to continue paying for the laptops.
7. Loading of unauthorised software and deleting OS files led to problems/conflicts with the Operating System (OS), and computer/hardware failure, not covered by the warranty.
8. Students hardly used some of the software that was preloaded onto the computers (for e.g. MS Visio and MS Project).
9. The Antivirus loaded on the laptops was ineffectual against harmful spyware and shareware.
10. Limited use of the Caribbean Exams Online portal which was intended to assist the students with their studies and academic performance.



11. The warranty for labour and parts misinterpreted by the parents/students.
12. Internal storage on the Lenovo ThinkPads was insufficient. Therefore, the processing and operating times of the laptops were greatly reduced, i.e. laptops were slow.
13. Recurrently damaged/broke laptop screens were not covered by the 3 year warranty, from mishandling, dropping, or placing heavy objects onto the laptops
14. The laptops were bulky and heavy with no proper protective storage carrier cases. As a result a good number of the computers got damaged very early into the programme.
15. LIME's computer technician was not available on site to receive the computers.
16. The teachers were unable to monitor and deter student misuse of laptops in the classroom (for e.g. graphic images, music, games, and movies).
17. Wi-Fi bandwidth was insufficient or nonexistent, consequently alternate methods were utilised to educate students in the classrooms.
18. LIME removed the Wi-Fi infrastructure.
19. Laptops had to be used off the school campus where Wi-Fi was available
20. Teachers and students would have preferred to have educational software on the laptops that were tailored to assist them in subject areas such as Biology, Chemistry, Physics, Mathematics, etc.
21. There were cases of attempted theft of laptops by students
22. Some of the teachers were not prepared, and were very reluctant, to teach classes using ICT to beef up their lesson plans.
23. IT teacher's specification input for laptops, was not taken into consideration.

#### **Look Out Primary School (LOPS)**

24. Laptops malfunctioned and/or do not work anymore.
25. The Wi-Fi bandwidth is very small.

#### **Brades Primary School (BPS)**

26. None of the teachers at BPS took up the offer to purchase a laptop.
27. The Wi-Fi does not work properly. BPS receives their wireless internet service from Digicel.

### **C. LIME**

28. LIME has not returned WIFI infrastructure with increased bandwidth to MSS.
29. Quite a number of the new laptops arrived defective or crashed shortly after and could not be repaired.
30. the Lenovo ThinkPads were problematic. Far too often, there was always a hardware or software issue that required some form of repair under the manufacturer's warranty.
31. LIME was very laggard in submitting the stipulated monthly reports to MoE.

32. LIME was responsible and accountable for collecting payment for the laptops accumulating it in their coffers, for future laptop procurement.

## **RECOMMENDATIONS**

- I. MoE needs to properly conclude the Agreement for Supply of Equipment and Services with LIME, if the School Laptop Programme is no longer operational. Any monies that LIME collected and have accumulated in their finances are to be accounted for and recouped by MoE.
- II. MoE must recover any surplus laptops from Phases I, II, & III that are defunct and/or inoperative, and still are in LIME's possession and duly inform the Ministry of Finance so that they can be disposed of, as per GoM's Stores Rules and Regulations.
- III. The School Laptop Programme could have been a very viable project if it was properly run and managed. Should the current GoM reinstate the School Laptop Programme:
  - MoE must play a more active role in overseeing the project, formulating and establishing their own set of aims and objectives for the school laptop programme and ensure that they are implemented and achieved.
  - MoE should be more stringent in the monitoring and regulating of whichever service provider that is contracted to procure the laptops and provide Wi-Fi services.
  - A more reputable, and reliable brand of laptop should be researched and sourced (for e.g. Dell, HP, Samsung, Acer, etc.).
  - The GoM/MoE should consider purchasing the replacement computer screens and pay for the installation as a one-off gesture to parents/students.
  - Provide a more durable, padded and zippered, laptop sleeve/case with either handles and/or adjustable strap.
  - Enforce the use of the Education management software (EMS) by the teachers.
  - Install a server-based network which will make it easier for the students to be monitored, as all users have to log-on with personal id and password
  - Institute training courses to familiarise and encourage teachers who are not well-versed in the use of ICT in the classrooms.
  - Conduct awareness demonstrations/presentations for the benefit of students and parents in relation to the care of the laptops.
  - Install lockers for the students to store their laptops.

## **AUDIT CONCLUSION**

The MoE School Laptop Programme did not achieve the benefits that fell under the overarching ICT Policy Objective to enhance the capacity and propensity of, as well as opportunities for, the population to effectively, innovatively, and creatively use ICT tools for education purposes.

Although the initiative was a good decision, it was unsuccessful as a result of the following: (i) the majority of laptops were faulty/defective; (ii) Wi-Fi bandwidth was

insufficient; (iii) the students' blatant ill-treatment of the laptops misuse of Wi-Fi access and; (iv) administrative issues within both MoE and LIME.

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## **CHAPTER 1 INTRODUCTION**

### **1.1 OVERVIEW**

In 2010, the Government of Montserrat (GoM) embarked on an e-Government program with a mission to modernise the public service. This was based on a premise of creating a connected government, improving operational and decision making processes, achieving efficiencies, and building a good governance structure<sup>1</sup>. It was felt that there was need for, among other things:

- increased efficiency and effectiveness of the public service
- modernised and integrated business systems of GoM and
- Improvement in the delivery of services to citizens and other stakeholders.

GoM focused on the use of Information Technology to drive its modernisation plan across the public service. For purposes of this assignment, the audited entity is being regarded as central government agencies - Ministries and Departments.

### **1.2 MANAGEMENT RESPONSIBILITY**

Management is responsible for ensuring that appropriate policies, procedures and effective controls exist. More specifically, management must ensure that policies and controls exist to monitor and ensure that (i) the objective and benefit defined by the (former) GoM, is achieved; (ii) the service provider fulfilled the terms of the Agreement for the supply of equipment and services.

### **1.3 AUDITOR'S RESPONSIBILITY**

Our responsibility is to independently express a conclusion on the post-implementation benefits of the MoE School Laptop Programme, based on our audit. Our work was conducted in accordance with ISSAI 100, 5300, and ISAE 3000. These principles require that we comply with ethical requirements and plan and perform the audit in order to obtain reasonable assurance whether tried and true policies, plans, procedures, and internal controls exist and are functioning effectively, proper records have been and are being kept, and all the necessary information and explanations for the purpose of our audit, has been obtained.

### **1.4 AUDIT MANDATE**

The Office of the Auditor General (OAG) is mandated through the Montserrat Constitution Order 2010 to perform the audit. This mandate is supported by ISSAI 1, 200, 300, 400, and strengthened by the Public Finance Management and Accountability Act (PFMAA) 2008 and the Public Finance Management and Accountability Regulations (PFMAR) 2009.

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<sup>1</sup> "A Model of Good Governance", e-Government Strategy, Volume 1, Ramesh Gupta, 2010

## 1.5 AUDIT STANDARDS & GUIDELINES

The guideline used to assess this Post-implementation benefits audit included the use of the ISACA's The Risk IT Practitioner Guide.

## 1.6 AUDIT OBJECTIVE

The former GoM, via the Ministry of Education (MoE), was keen on creating a modern teaching and learning environment at the local educational institutions. Access to ICT services is essential to that environment as it has the potential to provide a platform from which more educational resources can be accessed and shared. Hence, the MoE School Laptop Programme began in 2012 as a part of the National ICT Strategy as a policy decision by the GoM.

Their overarching ICT Policy objective and Strategic Thrust under "Learning" in their *National ICT Policy, Strategy & Implementation Plan, 2012 – 2016*, pertaining to the laptop programme in chapter 6, was as follows:

### 6.2 Learning

*ICT Policy Objective: To enhance the capacity and propensity of, as well as opportunities for, the population to effectively, innovatively and creatively use ICT tools for education, business, social, cultural and leisure purposes.*

*Strategic Thrust 1: Enhance the education experience and its effectiveness through formal and informal channels<sup>2</sup>*

Consequently, this post-implementation benefits study is intended to validate whether the objective and benefit identified in the GoM's original business case for investing in the MoE School Laptop project/programme, had been achieved.

The study will determine if there is a modern teaching learning environment at the local educational institutions where all students and teachers attending MSS and the select few Primary school teachers:

1. Have access to a laptop with the intention of increasing the number of students/teachers that are technologically up-to-date
2. If the education process has been enhanced by the laptop program.

## 1.7 AUDIT SCOPE AND METHODOLOGY

The study will cover the period May 2012 to September 2016 and will focus on the examination of the relevant *Key Programme Elements* and *Targets* that fall under *ICT Policy Objective* and *Strategic Thrust 1*, in section **6.2 Learning** from the *Montserrat's National ICT Policy, Strategy & Implementation Plan 2012 – 2016*.

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<sup>2</sup> *Montserrat's National Information & Communication Technology Policy, Strategy & Implementation Plan 2012 – 2016*

A combination of techniques were utilised to gather information and assess whether relevant controls existed, were implemented, and if they were effective in ensuring that Moe School Laptop project met the GoM's objective. These included, but were not limited to, interviewing of the Ministry of Education, DITES and other relevant GoM staff, staff and students at Montserrat Secondary School, Brades and Look Out Primary Schools and other relevant external entities; inspection of documents, MSS campus and assets; and issuance of questionnaires to the key stakeholders in order to gather in-depth information about the laptop project.

The findings of this report were discussed with the P.S. Education and his view(s) were taken into consideration when finalising the report.

## CHAPTER 2 DEVELOPMENT, IMPLEMENTATION AND MANAGEMENT OF LAPTOP PROGRAMME

### 2.1 GOVERNMENT OF MONTSERRAT (GoM)

#### 2.1.1 NATIONAL ICT POLICY <sup>3</sup>

##### National ICT Policy Objectives

The Government had set out to encourage, favour and promote the identification, development, adoption and utilisation of ICTs, as appropriate, in order to advance the achievement of the national strategic goals. This position was more specifically informed by the National ICT Policy's focus in the areas of Access, Learning, Society, Economy and Policy. These areas are generally internationally regarded as the basic tenets of using ICTs for national development and transformation.

In order to create a powerful concept that was uniquely Montserratian and which could be used to quickly communicate the Policy's focus areas, the Government had developed the acronym **e-lava**. As an acronym, **e-lava** followed the established pattern of incorporating an "e" as a prefix, as in the cases of e-business, e-government and e-health where the "e" suggests the effective application of ICTs in business, government and health respectively. The five focus areas depicted by **e-lava** were *Environment, Learning, Access, Virtual and Adoption* where *Learning* is the area of interest for this review.

##### Under 5.2 Learning

*Education • Literacy • Development*

***To enhance the capacity and propensity of, as well as opportunities for, the population to effectively and innovatively create and use ICT tools for education, business, social, cultural and leisure purposes.***

The following points serve to highlight the different dimensions of the policy objective for the "Learning" focus area, and provide deeper insight into the Policy's desired outcomes:

- i. Use ICTs to improve the management and delivery of education services, and enhance the learning experience and outcomes throughout the education system;
- ii. Build an ICT literate and e-Ready population with the skills and attitudes to use ICT to enhance their daily lives;
- iii. Develop the skills required for Montserrat's local ICT service sector; and
- iv. Facilitate the necessary training and development interventions to allow for the creation of world-class ICT applications and solutions locally.

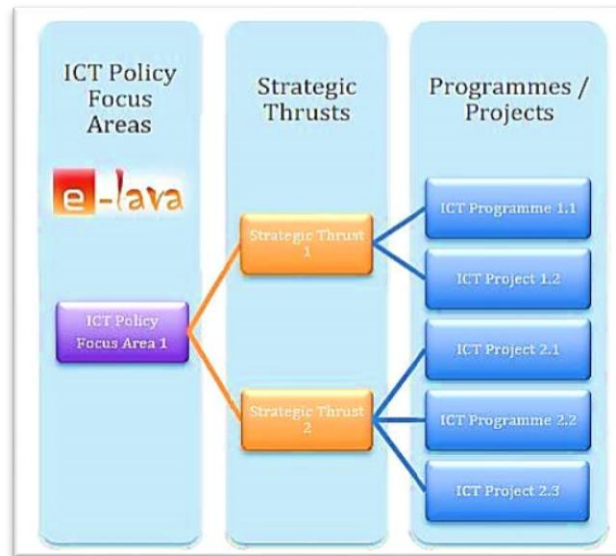
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<sup>3</sup> *Montserrat's National Information & Communication Technology Policy, Strategy & Implementation Plan 2012 – 2016*



### 2.1.2 NATIONAL ICT STRATEGY<sup>4</sup>

Building on the ICT Policy's focus areas, as captured by **e-lava**, the National ICT Strategy set out a context for the realisation of the National ICT Vision and achievement of the National ICT Policy objectives. The Strategy was comprised of a number of strategic thrusts, which would have been pursued through a series of related programmes and projects. These relationships are illustrated in the diagram below:



The strategic thrusts and related programmes/projects were a culmination of numerous stakeholder consultations in order to incorporate national priorities, aspirations, values and analyses of global best practices. Notably, the various programmes and projects contained in the National ICT Strategy individually and collectively related to the strategic goals of the SDP, as shown in the chart below.

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<sup>4</sup> *Montserrat's National Information & Communication Technology Policy, Strategy & Implementation Plan 2012 – 2016*

#	SDP - STRATEGIC GOALS	
SG 1	<b>Economic Management</b>	<i>An environment that fosters prudent economic management, sustained growth, a diversified economy and the generation of employment opportunities.</i>
SG 2	<b>Human Development</b>	<i>Enhanced human development and improved quality of life of all people of Montserrat.</i>
SG 3	<b>Environmental Management and Disaster Mitigation</b>	<i>Montserrat's natural resources conserved within a system of environmentally sustainable development and appropriate strategies for disaster mitigation.</i>
SG 4	<b>Governance</b>	<i>An efficient, responsive and accountable system of governance and public service.</i>
SG 5	<b>Population</b>	<i>A sustainable population.</i>

The SDP **SG 2 Human Development** is the area of focus for this post-implementation benefits study, where one of the broad goals of the GoM was to enhance human development and improve quality of life of all people of Montserrat. Under chapter **6.2** of the *National ICT Policy, Strategy & Implementation Plan, 2012 - 2016*, the overarching policy objective and strategic thrust for this review, are outlined below:

*ICT Policy Objective: To enhance the capacity and propensity of, as well as opportunities for, the population to effectively, innovatively and creatively use ICT tools for education, business, social, cultural and leisure purposes.*

*Strategic Thrust 1: Enhance the education experience and its effectiveness through formal and informal channels*

**Learning** addressed the critical need for enhanced teaching and learning throughout the education system. This required a modernised pedagogy, the creation and customisation of suitable content, and an environment in which there was more effective interaction between parents, students and teachers. There would be opportunities to explore distance and other benefits of connecting local schools with other learning institutions outside of Montserrat.

This focus area also considered the achievement of basic ICT literacy among all members of the population and the development of advanced ICT skills and manpower to address the domestic need for ICT services and support. Consistent with their Education Development Plan, building a nation of modern and lifelong learners required ease of access to educational material, among other things. The critical role of ICTs in this regard could not be overstated, as Montserratians must increasingly participate in and contribute to the global knowledge society.

Additional guiding principles for this focus area included the following:

- Opportunities for training and qualification/certification in appropriate technologies such as networking, Internet, information security, software development, database administration and computer repair;
- Creation and production of local content; shifting the balance from a “download” to more of an “upload” culture; and
- Multi-modal distance education.<sup>5</sup>

Strategic thrusts, key programmes and key programme elements were developed for **Learning**. However, only the first of the “Strategic Thrusts”, the “Key Programme Elements” and “Targets”, will be the focus for the purpose of this post-implementation benefits study as indicated below:

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<sup>5</sup> *Montserrat’s National Information & Communication Technology Policy, Strategy & Implementation Plan 2012 – 2016*

## **Learning**

*ICT Policy Objective: To enhance the capacity and propensity of, as well as opportunities for, the population to effectively, innovatively and creatively use ICT tools for education, business, social, cultural and leisure purposes.*

STRATEGIC THRUSTS	KEY PROGRAMMES	SDP Goal	KEY PROGRAMME ELEMENTS	TARGETS	TIMELINES	KEY AGENCIES
<b>1. Enhance the education experience and its effectiveness through formal and informal channels</b>	ICT in Education	SG 2	Training of teachers and administrative staff in the use of ICT for education enrichment (e.g. in English, Mathematics, Sciences)	Laptops for secondary school teachers	2012	<b>Ministry of Education</b> , MCC, UWI, DITES
				Participation in Commonwealth Secretariat's Computers for Teachers (CFT) initiative	2012	
			Training of students in ICT-facilitated learning (research, assignments, interactive study)	Financial incentives for secondary school students to acquire laptops	2012	
			Integrate ICTs into the curriculum (ICT as a subject)	Curriculum revisions determined and made	2013	
			Training of "private" teachers/educators in the use of ICTs for education	Plan formulated	2012	
				Training ongoing	2013	

## 2.2 DEPARTMENT OF INFORMATION TECHNOLOGY & e-SERVICES (DITES)

DITES was very instrumental in the conception of Montserrat's National ICT Strategic Plan 2010 – 2016. The Director of the department was an approved and elected member of the National ICT Council by the Cabinet at the time. Aside from the consultancy role, DITES was either accountable for, or was an enabler in, the execution and implementation of several of the projects identified in the ICT plan.

With the MSS Laptop project, DITES performed the following:

- a) Participated in the evaluation of, and invitation to tender<sup>6</sup> process that was issued by the Ministry of Finance on 27<sup>th</sup> March, 2012.
- b) Researched and approved the specifications of the laptops, accessories, and software as seen below:

### **GoM Laptop Specifications**

#### **ThinkPad Lenovo Edge 15**

- Processor: i3-380M (2.53GHz)
- Memory: 2GB RAM
- Video Card: Integrated Intel HD Graphics
- Display Size: 15.6in 1366x768 LCD
- Audio Type: Integrated
- Speaker Type: Integrated
- Internal Storage: 320GB 5400rpm HD
- Optical Drive: CDRW/DVDRW
- Network Speed: 1Gb Ethernet
- Wireless Network Type: 802.11bgn wireless
- Keyboard Type: 6-row, spill-resistant, multimedia Fn keys (English)
- Interface Provided: Three USB 2.0 (one powered), one USB 2.0/eSATA combo port, external monitor (VGA DB-15, HDMI), Ethernet (RJ-45)
- Web Camera: Yes
- Operating System: Windows 7 Professional 64
- Power Supply: External AC Adaptor (100v – 240v)
- Battery: 6c Li-Ion (6 Hours Minimum)
- Warranty: 3 year depot parts and labour coverage

#### **Additional Memory**

**Additional Option:** 2GB P3CDDR3-1333 3 400 51J0477

**Sleeve Accessories:** ThinkPad 15W Sleeve Case

#### **Software Links** are below:

Microsoft Office Suite 2010 - <http://office.microsoft.com/en-us/products/>

Microsoft Learning Suite

[http://1to1.eun.org/c/document\\_library/get\\_file?folderId=31389&name=DLFE-1002.pdf](http://1to1.eun.org/c/document_library/get_file?folderId=31389&name=DLFE-1002.pdf)

<http://www.pil-network.com/Resources/tools/Details/9db2ca32-098d-40ad-a4c4-d236d50bd4dc>

The Anti-virus is AVG.

<sup>6</sup> <http://www.gov.ms/2012/03/27/invitation-to-tender-for-school-laptop-programme/>

- c) Loaded approved software onto one laptop then provided LIME with an image to be cloned onto the other laptops by the LIME-contracted technician.
- d) Acted as MOE's consultant for the project.

### **2.3 MINISTRY OF EDUCATION (MoE)**

The GoM through the Ministry of Education (MoE) was keen to create a modern teaching learning environment at the educational institutions. It believed that such an environment was critical not only to staff and student motivation but such an environment better prepared the Montserratian young people to operate at a higher standard, encouraged innovation, and better prepared them for the world. Consequently, access to ICT services was essential to that environment as it had the potential to provide a platform from which more educational resources could be accessed and shared. Therefore, understandably, ICT was expected to play a major part in delivering the kind of citizen the GoM wished to produce from the education system. If they were to produce this kind of citizen, with the capabilities indicated, they had to provide the environment within which they could flourish.

However, in essence, MoE's input and part played in the implementation of the Laptop project was marginal; they only implemented the directives assigned by the Office of the Premier. The department's main function was to oversee and liaise with the service provider, LIME (now FLOW), throughout the duration of the programme.

MoE was responsible for:

- a) Providing payment for the Equipment and Services as invoiced by LIME in *Schedule 3*, as soon as the Agreement was signed.
- b) Providing LIME with customs and duties and consumption tax free concessions on the Equipment (laptops and accessories).
- c) Monitoring LIME to ensure that the service provider fulfilled the terms of the signed Agreement for the supply of equipment and services.
- d) Providing LIME with prompt assistance and information i.e. the number of teachers, parents/guardians, and students, who elected to participate in the laptop programme and any other relevant data that LIME required to perform its obligations efficiently and effectively.
- e) Communicate with LIME whenever they require them to purchase more, or to distribute, laptops and any spare laptop computers.

#### **2.3.1 MONTERRAT SECONDARY SCHOOL (MSS)**

The Laptop Programme was specifically earmarked for the Montserrat Secondary School, where students and teachers were given<sup>7</sup> financial incentive to acquire laptops. The

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<sup>7</sup> Chapter 6.2 **Learning** (of the) *The National ICT Policy, Strategy & Implementation Plan, 2012 - 2016*

laptop programme had no set budget; funds were allocated to the programme from the GoM's ICT budget based on the cost of procuring the laptops.

Most students and teachers opted to take part in the programme due to the low cost of the laptops. In the majority of the cases, the few, who did not take part, were those who already had laptops and did not wish to purchase another.

#### **Phase I**

In the first phase of the laptop programme, 400 units were purchased and assigned to 40 teachers and 360 students of MSS, ranging from 1<sup>st</sup> to 5<sup>th</sup> form.

#### **Phase II**

In the 2<sup>nd</sup> phase of the laptop programme, 76 laptops were purchased and only 1<sup>st</sup> form students and teachers (this included 22 Primary school teachers) were issued laptops.

#### **Phase III**

In the 3<sup>rd</sup> phase of the laptop programme, 72 machines were purchased and distributed to 1<sup>st</sup> formers, teachers, and ad hoc personnel in MoE.

The laptops were received from LIME equipped with Microsoft Office Suite as well as a mathematics educational programme. There was also a parental control feature that could be activated by any parent who wanted to restrict/monitor their child's internet activity. Students were allowed to take the laptops to school for IT class and any other class when a teacher indicated that they will be used.

### **2.3.2 PRIMARY SCHOOLS**

The local Primary Schools were not official targets of the ICT Policy, but the Ministry of Education extended the offer to purchase a laptop to teachers in select Primary Schools (Brades and Lookout), in 2012.

## CHAPTER 3 OBLIGATIONS OF THE SERVICE PROVIDER

### 3.1 LIME (now FLOW)

LIME had won the bid that was advertised by the Central Tenders Board, Ministry of Finance. According to *Schedule 2*<sup>8</sup>, of the service Agreement between LIME and MoE, LIME was to purchase and deliver the laptops on behalf of the GoM/MoE by November 2, 2012 or a later date agreed upon between the two entities.

### 3.2 TERMS & CONDITIONS OF AGREEMENT

The following is a synopsis of some of the terms and conditions of the signed *Agreement for Supply of Equipment and Services*<sup>9</sup>. As per the agreement, LIME's obligations would be to:

- promptly notify MOE, in writing, of any delay, the reason for the delay and the duration of the delay;
- apply in writing to MOE for concessions. LIME was not liable for any loss due to delays by GoM/MOE in providing, or failing to provide them with concessions
- apply any partial payments made to LIME by MSS teachers and students/parents to first to their LIME bill then for the laptop;
- discharge its obligations in the Agreement in compliance with its own established internal procedures;
- adhere to all applicable laws, rules and regulations of Montserrat.

LIME was to also perform the following as the service provider:

1. verify that the Equipment is in good physical condition;
2. prepare and package all Equipment for Delivery;
3. develop relevant forms and checklists for approval and acceptance by the Government;
4. on dates agreed with the Government and after having received the relevant lists of teachers and students/parents with contact numbers, deliver the Equipment to each person on successful signing of the contract document in *Appendix II* at a location to be agreed between parties;
5. maintain an inventory inclusive of the number of laptops and the serial number of each laptop received, tested, delivered and accepted by the teachers and students/parents;
6. issue invoices to each teach and student/parent for the sale of the Equipment and receive payment for the same;

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<sup>8, 9</sup> *Agreement for Supply of Equipment and Services, Cable & Wireless (West Indies) Limited, Montserrat Branch t/a LIME*



7. monitor the payments and hold on account on behalf of the Government all monies due to the Government for such sales and transfer the same to the Government within 15 days after the end of each calendar quarter;
8. in the event that a teacher or student/parent fails to make a payment for the Equipment, take such action to seek to collect the debts owing to the government by teachers and/or students/parents or assist the Government in taking such action in keeping with LIME's normal billing and credit management procedures;
9. in the event that LIME is unable to fully collect the debts owing, report the difference in the account to the Government;
10. in the event of a fault occurring in the Equipment during the Warranty Period, receive, log, resolve and close support-related issues in relation to the Equipment reported by teachers and students/parents during the Working Day. Support-related issues shall be carried out by the manufacturer's local representative, including:
  - a. diagnostic and troubleshooting if hardware defects,
  - b. replacement of parts (inclusive of transport and labour), and
  - c. reinstallation of pre-installed software;
 with the following resolution times:

Defect Type	Maximum Resolution Time	Resolution Type
Type 1	1 business day	Defect resolved via telephone or local support
Type 2	3 business day	Defect requires the replacement of parts
Type 3	7 business day	Defect requires the replacement of the laptop

11. provide monthly updates on the Services, including support-related issues, to the Government.

### **3.2.1 WARRANTY**

LIME itself did not provide any warranty for the laptops, there was only the manufacturer's 3 year warranty on goods and service (excluding the battery and broken screens); and LIME would inform the students/parents and teachers of the terms & conditions of this warranty. Therefore, when a fault occurred with a laptop, LIME would only receive, log, resolve, and close support-related issues reported by the owners/users of the laptops.

The company could not control, or be held accountable for, the content the owner/user of the laptop accessed or sent, neither could the company represent or warrant that:

- laptops would meet the owners'/users' requirements,
- unauthorised access by third parties would be prevented,
- laptops would be secure, or error-free.

The accuracy, appropriateness, and use of any material and/or data the owners/users had uploaded, downloaded or otherwise obtained via the internet and any domain name, would be done at their own discretion and risk. The resulting damage to the computer system or loss of data would be the owners'/users' responsibility. Same principle applied to the use of any information or data that infringed upon the proprietary or other rights of others. The onus was also on the owners/users, to use appropriate antivirus and malware protection.

### **3.3 PROCUREMENT, DISTRIBUTION, AND PAYMENT**

The MSS Laptop Programme had no set budget; the funds were allocated to the programme from the government's ICT budget based on the cost of procuring the laptops. The accumulative funds collected from the teachers and parents/students, would be recurrently rolled over and applied to any future laptop procurement. In the inaugural phase, the agreement between MoE and LIME was for the service provider to purchase 400 Lenovo Edge 15 laptops from Lenovo, for XCD\$792,284.04 and distribute them to the list teachers and students/parents, that MoE provided, for first week in October 2012. GoM paid sixty-seven percent (67%) or two thirds of cost for the laptop and the parents/students and teachers paid one third, which amounted to (Eastern Caribbean dollars) XCD\$800.00.

Before the laptops were distributed to the teachers and students/parents, LIME would ensure that the laptops were tested and pre-loaded with the images of the software defined by DITES. The customers would go to the Retail Store at the LIME headquarters in Sweeneys, to sign a payment contract and to collect their computer.

LIME was responsible for monitoring the payments as part of the customers' telephone bills. Each customer had to sign a contract stating their agreement to pay for their laptops, under one of the following payment schemes:

- paid in full, upfront - XCD\$800.00
- monthly instalments of XCD\$44.00 for over a period of eighteen (18) months - most parents opted for this method of payment
- monthly instalments of XCD\$67.00 for over a period of twelve (12) months

Customers were not allowed to be more than one month overdue as per LIME's normal billing terms and conditions.

Initially, the customers were required to have either a LIME landline, or a LIME pre-/post-paid cellphone. However, due to delinquency in payments by some of the customers, and difficulty in tracking delinquent customers with pre-paid cellphones who were not fulfilling their payment obligations, by the 3<sup>rd</sup> phase of the Laptop programme LIME had to amend the payment scheme. All customers were now required to pay fifty percent (50%) or XCD\$400.00 upfront, and to have an active land line, only.

Concessions were made for fewer than 10 students/parents who were less fortunate and were not able to afford the laptops. They were given laptops and Internet service, free of cost. Also, the Montserrat Football Association (MFA) was billed for laptops on behalf of thirty-two (32) students who were members of the organisation. Also, from time to time, MoE would instruct LIME to issue laptops to certain individuals, free of cost.

### **3.3.1 STUDENT SUPPORT FOR LAPTOP PROGRAMME**

LIME provided all teachers and parents/students with an information letter about the Laptop warranty, technical support and computer tips (also Caribbean Exams Online Education portal, username and password to MSS Wi-Fi network).

#### **Computer Tips**

LIME outlined the proper care and use of the laptops in order to extend their useful life beyond the 3 year warranty in *Appendix I<sup>10</sup>*, of their first quarterly report.

The information letter explained in detail the do's & don'ts for avoiding and/or sustaining: internal damage or electrical injury to the laptop, circuit errors, deceleration of software, data corruption, permanent destruction of computer parts, virus/malware infections, dirt buildup and staining, damage to display monitors (screens) and keyboards, jamming of accessory devices, damage to the power cords, overheating, and battery life, by:

- Protecting laptops from food and drink spillages.
- Having antivirus software on the laptops.
- Having clean hands when using the laptops
- Protecting the display monitor from being damaged by small objects (pencils, earphones, etc.) when closing down the lids.
- Handling laptops correctly from the base and not the screen/lids.
- Not damaging power cords by unplugging them correctly, or rolling chairs over them.
- Plugging in accessory devices carefully and at correct angle in proper slots.
- Not exposing or storing laptops or batteries to extreme or fluctuating temperatures.
- Not placing heavy materials on top of laptop and keyboard.
- Using correct-sized laptop cases or bags for storage and toting laptop around.
- Cleaning exhaust fan.
- Avoid constantly using laptops on debris and dust harbouring surfaces (e.g. beds).
- Removing battery packs from laptops if not being used for a prolonged period
- Fully charge/discharge (cycled) new battery packs, and completely drain and recharge batteries once a month, to maximize charge holding capacity.
- Disconnecting laptops from main electricity and modems before storms.

#### **Technical Support**

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<sup>10</sup> Quarterly Report on GoM Laptop Distribution by LIME

A three (3) year warranty was provided by the manufacturer which covered labour and replacement parts. However, problems such as battery failure, unusual wear and tear, improper or abusive use resulting in failure and software support, were not included under the warranty.

### **3.3.2 COLLECTIONS**

Laptop payments were monitored as part of the customers' fixed phone line account. Overdue payments would result in delinquent customer's telephone and/or internet services being disconnected or further steps being taken to recoup outstanding payments. A <sup>11</sup>collections process was implemented for customers who were in default as per their agreed payment plan:

1. First step was to call the customer and advise them of the status of their account.
2. Next step was to formally write the customer indicating the status of their account and the requirement to normalise their account.
3. Failure to pay off their outstanding arrears would result in service disconnection.
4. Last step, after two months, is to seek legal counsel to recoup outstanding monies.

### **3.4 WIFI AND INTERNET ACCESS**

A cloud-based Wi-Fi system consisting of two access points, with a total bandwidth of 6MB, was installed, with free access to all users at the MSS compound, with future plans to expand their network to other schools. The service provider also placed restrictions on the Wi-Fi service to prevent access to certain sites, as per the list below:

#### Site Restriction List

- Adult content
- Dating services/links
- File sharing
- Pornography
- Hacking/Cracking
- Social Media sites
- Weapons and related sites<sup>12</sup>

The Wi-Fi access point in the administrative office was password protected, whilst the access point for the students, was not.

## **CHAPTER 4 FINDINGS AND OBSERVATIONS**

The following findings and observations were determined when conducting this post-implementation benefits review of the MoE School Laptop Programme:

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<sup>11</sup> *Agreement for Supply of Equipment and Services, Cable & Wireless (West Indies) Limited, Montserrat Branch t/a LIME*

#### **D. GOVERNMENT OF MONTSERRAT (GoM)**

1. The MoE School Laptop Programme was discontinued by the newly elected government that came into power in 2014. To date, the rationalization for suspending the programme has not been made known clear.

#### **E. MINISTRY OF EDUCATION (MoE)**

2. To date, the contract with LIME has not been terminated although the Laptop Programme has been shelved by the new government. However, MoE still instructs LIME to issue surplus operational laptops that they still have in their possession.
3. There have been instances where the MoE has been tardy in confirming and/or providing required information to LIME, causing minor delays.

#### **Montserrat Secondary School (MSS)**

4. Even though LIME provided students/parents with computer tips, it was observed that they hardly put them into practice.
5. Students did not handle and/or convey the laptops around with care. They treated the computers in a manner that resulted in the reduction of the unit life or cause equipment failure i.e. hard drives crashing and the screens being damaged from being dropped. Other resulting physical damage/issues from being dropped were also not covered by the warranty.
6. Damaged screens were not covered by the manufacturer's warranty, and replacement cost at the time for the screen and labour was XCD\$650.00. These damaged laptops would be out of circulation and unable to be used by the students. Parents chose not to cover the repair cost and some even refused to continue paying for the laptops on a monthly basis.
7. The owners would load unauthorised non-educational software onto the laptops which would cause problems/conflicts with the Operating System (OS). Students would also delete OS files and then report the computer as not working. The resulting computer/hardware failure would require a re-install of the 'image', and these fault repairs were not covered by the warranty.
8. The students uninstalled the pre-loaded software, mainly Microsoft Office Suite, which also had to be reinstalled by LIME. The parents were usually invoiced as the repair was not covered under the warranty.
9. Some parents/students loaded new OS, like Windows 8, on the laptops and the resulting problems/conflicts were taken to friends/relatives to resolve instead of adhering to the support parameters as defined in their contracts.
10. Only a minute percentage of the student body who owned laptops asked about, or attempted to use, some of the software that was preloaded onto the computers (for e.g. MS Visio and MS Project).
11. The Antivirus loaded on the laptops was ineffectual against harmful spyware and shareware that caused computer performance issues, and OS or applications, failure.

12. Limited use of the Caribbean Exams Online portal which was intended to assist the students with their studies and academic performance.
13. The warranty for labour and parts, as provided by the contractual arrangement, was usually misinterpreted by the parents/students.
14. Internal storage (320 GB) on the Lenovo ThinkPads was insufficient. Once the OS and the software images were loaded onto the laptops, not much memory remained for other tasks to be performed. Therefore, the processing and operating times of the laptops were greatly reduced, i.e. laptops were slow.
15. Students recurrently damaged/broke laptop screens which were not covered by the 3 year warranty. Screens were usually damaged from either:
  - improper handling, i.e. lifting the laptops by the lids or corner of the screen instead of the base of the laptop
  - computers slipping/falling out of students' hands, book bags, or off their desks
  - students placing heavy objects on top of the laptops
16. The Lenovo ThinkPads were bulky and heavy and no proper protective storage carrier cases were provided. The sleeves brought in by LIME, were thin and flimsy and did not offer any form of protection when laptops fell or were dropped. Consequently, a good number of the computers were damaged commencing from the inaugural phase of the programme.
17. When damaged laptops were taken to LIME's computer technician to be repaired, more often than not, he was not on-site to receive the computers.
18. The teachers were unable to monitor and deter student misuse of laptops in the classroom, as was the intended objective. As a result, the majority of the students used their laptops to download, watch and play media files (for e.g. images, music, games, movies); some with very explicit and graphic content (pornography). These media files required large amounts of bandwidth, which exceeded the data transfer rate speed of 6 MB that LIME donated. Consequently, the large volume of 'traffic' that had accessed the Wi-Fi simultaneously, caused a bandwidth bottleneck, i.e. it slowed down network performance causing the Internet to freeze up.
19. Because the Wi-Fi bandwidth was insufficient for the needs of the faculty and students, a few of the teachers began using white boards instead to educate in the classrooms where the Wi-Fi signal was non-existent.
20. After LIME removed the Wi-Fi infrastructure, students were not allowed to bring their laptops to class unless directed to do so by a teacher.
21. Teachers were forced to give assignments to be completed outside of the classrooms. Laptops had to be used off the school campus where Wi-Fi was available, for instance, at the Montserrat Public library or in a private home setting.
22. Teachers and students alike complained that they would have preferred to have educational software on the laptops that were tailored to assist them in subject areas such as Biology, Chemistry, Physics, Mathematics, etc.

23. There were cases of attempted theft of laptops by students as all the laptops were generic in size, shape, and colour.
24. It was disclosed that some of the teachers were not prepared to, and were very reluctant to, teach classes using ICT to beef up their lesson plans.
25. The IT teacher revealed that her input about the laptop specifications, were not taken into consideration, i.e. notebook type laptops.

#### **Look Out Primary School (LOPS)**

26. Majority of the laptops issued to the LOPS teachers, malfunctioned and/or do not work anymore.
27. The Wi-Fi infrastructure currently in place is very poor. The bandwidth is 6 MB and the signal is very weak; it cannot be picked up in the upstairs classrooms. Therefore, the teachers have resorted to utilising their personal laptops and smart phones in conjunction with white boards and projectors, to teach.

#### **Brades Primary School (BPS)**

28. None of the teachers at BPS took up the offer to purchase a laptop.
29. The Wi-Fi access that LIME donated, does not work properly. BPS receives their wireless internet service from Digicel.

#### **F. LIME (now FLOW)**

30. The Wi-Fi infrastructure (i.e. all of the wireless devices and hardware) was removed from MSS campus by LIME due to the continued misuse by students. LIME gave the assurance that when they upgraded their network services with fibre optic cabling, they would provide the schools with internet connections that have larger bandwidth. To date this has not been the case.
31. During and after the inaugural phase of the laptop project, quite a number of the new laptops arrived defective or crashed shortly after and could not be repaired. In the first few weeks of the programme, laptops had to be returned to the service provider to be repaired by the computer technician contracted by LIME. In some cases, new replacement laptops were issued in lieu of the computers that were to be repaired.
32. Aside from the mishandling of the laptops by the students, the Lenovo ThinkPads were problematic. Far too often, there was always a hardware or software issue that required some form of repair under the manufacturer's warranty. This resulted in quite a few of the parents refusing to continue making monthly payments for what turned out to be substandard computers.
33. LIME was very laggard in submitting the stipulated monthly reports to MoE. This had been the trend before (and after), the managerial position changed hands in 2014. The reports gave an account of Distribution and Operations, Wi-Fi and Internet

access, Faults/Failures, Collections, Site Restriction List, Observations, Recommendations, and Conclusion.

34. LIME was not only responsible for collecting payment for the laptops issued, they also accountable for the revenue collected from the monthly payments. These monies were accumulated in their coffers to be rolled over for future laptop procurement. It is likely that money from the laptop programme is still in their coffers.



## CHAPTER 5 RECOMMENDATIONS

### 5.1 RECOMMENDATIONS

- A. MoE needs to properly conclude the Agreement for Supply of Equipment and Services with LIME, if the School Laptop Programme is no longer operational and will not be re-instated. It is important that the programme is properly concluded; if there are still any monies that were collected by LIME being accumulated in their finances, the funds need to be accounted for and recouped by MoE. These resources represent public funds, which the previous government delegated to LIME for the procurement of computers and accessories for the laptop programme. The monies should be paid back into the Treasury.
- B. We recommend that MoE recovers any surplus laptops from Phases I, II, & III that are defunct and/or inoperative, and still are in LIME's possession. These subsidised laptops belong to the GoM, and are considered assets. After securing these assets, MoE should duly inform the Ministry of Finance of the assets in its possession and make the request that they should be disposed of, as per GoM's Stores Rules and Regulations.
- C. A server-based network should be installed on all school campuses with monitoring capabilities using indoor (for teachers/students) and outdoor (for visitors) Wireless Access Points (WAPs). This will make it easier for the user activities (mainly the students) to be monitored, as they will have to log into the network with a personal id and password.
- D. We suggest MoE continue to initiate training courses to familiarise and encourage teachers who are not well-versed in the use of ICT in the classrooms.
- E. We recommend that the abandoned Education Management Information Software (EMIS), by the teachers, should be re-introduced. This software enables the teachers to:
  - track student enrollment
  - produce report cards and progress reports
  - verify course completion
  - enable real-time/live notification to parents of student activities
  - attendance taking
  - grade keeping
  - lesson planning
- F. The School Laptop Programme could have been a very viable project had it been properly run and managed. However, should the current GoM ever reconsider their position and re-instate the School Laptop Programme we propose that it could be re-vamped by effecting the following:

- 1) MoE must play a more active role in overseeing the project. The Ministry should formulate and establish their own set of aims and objectives for the school laptop programme and ensure that they are implemented and achieved.
- 2) MoE should be more stringent in the monitoring and regulating of whichever service provider that is contracted to procure the laptops and provide Wi-Fi services. Regular face-to-face meetings could be held with the service provider, in order to be brought up-to-speed about laptop orders, collection of payments, issues encountered, etc., seeing that the department had difficulty in the past obtaining regular written reports from LIME.
- 3) A more reputable, and reliable brand of laptop should be researched and sourced (for e.g. Dell, HP, Samsung, Acer, etc.). This new brand should provide more memory and a faster processor.
- 4) If the manufacturer's warranty does not cover either battery replacement or/and damaged screens, the GoM/MoE should consider purchasing the replacement computer screens and pay for the installation as a one-off gesture to parents/students.
- 5) In order to increase the usable life of the laptops, it is essential that a more durable, padded, zippered, laptop sleeves/cases be purchased. The bags should come equipped with either handles and/or adjustable strap.
- 6) There is also a need for some form of awareness demonstrations/presentations for the benefit of students and parents, in order to ensure that they are clear on their responsibilities in relation to the care of the laptops.
- 7) Install lockers for the students to store their laptops whenever they are not using them for classes.

## **5.2 MANAGEMENT RESPONSE**

We agree with the auditors' comments, and the following action will be taken to improve the situation.

- We will seek to conclude the Agreement for Supply of Equipment and Services with LIME by the end of the first quarter of 2018/2019.
- We will seek to recover any surplus laptops from Phases I, II, & III that are defunct and/or inoperative, and still are in LIME's possession and dispose of them by the end of Quarter 2 of 2018/2019.
- We have placed the development of our networking infrastructure on our internal list of priority infrastructure needs, we will procure and install the hardware, and software as funding becomes available.
- We will ensure that teachers continue to receive training on the use of ICT in the classroom
- Have not abandoned the EMIS but rather have been unable to incorporate and resource the function. We will review the job descriptions roles, functions and work

loads of our support staff to determine the most appropriate action and make any necessary business cases by the middle of Quarter 2 of 2018/2019.

- We will review and update our laptop policy and consider how best to incorporate the recommendation of the auditor by the end of Quarter 2 of 2018/2019.

## CHAPTER 6 AUDIT CONCLUSION

It is the conclusion of the Office of the Auditor General (OAG) that the MoE Laptop Programme failed to achieve the benefits that fell under the overarching ICT Policy Objective to enhance the capacity and propensity of, as well as opportunities for, the population to effectively, innovatively, and creatively use ICT tools for educational purposes.

There is no modern teaching learning environment at the local educational institutions where all students and teachers attending MSS, and the select Primary school teachers, have access to a laptop with the intention of increasing the number of students/teachers that are technologically up-to-date. Neither was the education process enhanced by the laptop program

Therefore it was concluded that although the initiative was a good decision, we found that it was unsuccessful mainly because of the following reasons:

- (i) The majority of the laptops brought in and distributed by LIME, was faulty/defective.
- (ii) The Wi-Fi bandwidth of 6 MB provided by LIME was insufficient to cover and fulfil the needs of the entire MSS school campus. The same issue applied to the Primary Schools.
- (iii) The students' blatant ill-treatment of the laptops and misuse Wi-Fi access.
- (iv) Administrative issues between MoE and LIME which hindered the effectual monitoring and management of the progression of the laptop programme.

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