



**PERFORMANCE REVIEW**

**OF**

**MONTSERRAT UTILITIES LIMITED - VALUE FOR MONEY**

**IN DELIVERY OF SERVICE TO THE PUBLIC**



Office of the Auditor General  
Brades Main Road  
Brades  
Montserrat  
March 2018

**MONTSERRAT UTILITIES  
LIMITED: VALUE FOR MONEY IN  
DELIVERY OF SERVICE TO THE  
PUBLIC**

This is a Report of a Performance  
Audit conducted by the Office of  
the Auditor General pursuant to  
Section 103 of the Montserrat  
Constitution Order 2010

Florence A Lee  
Auditor General  
Office of the Auditor General  
30 March 2018



# PREAMBLE

## Vision-Statement

The Office of the Auditor General (OAG) plays a crucial role in ensuring that public monies are spent wisely. Our vision is therefore “to be a proactive Supreme Audit Institution (SAI) that helps the nation to make good use of its resources”.

## Mission-Statement

“The OAG 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

Our goal is “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

The Office of the Auditor-General has begun to review service-delivery to citizens of Montserrat in an effort to provide better value. Of concern to many are the operations within the Montserrat Public Service and State-Owned Entities such as MUL that influence fiscal, economic and other factors that impact on public services and payment-systems. MUL was also selected owing to its predominant size in the local economy and its status as the monopoly providing water, electricity, and sewage-services to the entire island.

Our review revealed that MUL is providing a reliable supply of high-quality potable water and also supplies satisfactory sewage-treatment to customers. However, our large customer-survey confirmed that there has been a high level of dissatisfaction with frequent loss of electricity-service, and many claims of damage to appliances and electronics. Of further revelation was the fact that many persons prefer online/card-based payments to minimise time and cost spent visiting the local office, and for persons (especially the many Montserratians and expatriates overseas) to be given the opportunity to be able to settle their accounts online.

We have provided a number of recommendations to address these issues and other findings contained herein that we believe would benefit the Government and the Citizens of Montserrat once they are implemented.

I wish to thank all persons who provided information and clarifications, participated in interviews and surveys, or extended any courtesy to my staff during this assignment.



Florence A Lee  
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March 2018

# ABBREVIATIONS USED

|         |  |
|---------|--|
| ATM     | Automated Teller Machine                                 |
| BOM     | Bank of Montserrat                                       |
| CARICOM | Caribbean Community                                      |
| CAROSAI | Caribbean Organisation of Supreme Audit Institutions     |
| CRM     | Client-Relationship Management                           |
| DFID    | U.K. Department for International Development            |
| ECCB    | Eastern Caribbean Central Bank                           |
| ECCU    | Eastern Caribbean Currency Union                         |
| ECSE    | Eastern Caribbean Securities Exchange                    |
| FCO     | U.K. Foreign and Commonwealth Office                     |
| GDP     | Gross Domestic Product                                   |
| GIS     | Geographical Information-System                          |
| GOM     | Government of Montserrat                                 |
| ICT     | Information and Communication Technologies               |
| IRD     | Inland Revenue Department                                |
| INTOSAI | International Organisation of Supreme Audit Institutions |
| ISSAI   | International Standards for Supreme Audit Institutions   |
| MCC     | Montserrat Chamber of Commerce                           |
| MCRS    | Montserrat Customs & Revenue Department                  |
| MOVA    | Montserrat Online Visa-Application                       |
| MPS     | Montserrat Public Service                                |
| MUL     | Montserrat Utilities Limited                             |
| OAG     | Office of the Auditor-General                            |
| OECS    | Organisation of Eastern Caribbean States                 |
| SDP     | Sustainable Development Plan                             |
| SEO     | Search-Engine Optimisation                               |
| SMEs    | Small and Medium Enterprises                             |

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# EXECUTIVE SUMMARY

## Why We Performed This Audit

1. **Good governance & service to the public.** Public services, generally, and delivery of utilities, particularly, both play a pivotal role in either catalysing economic development or impeding national progress. In turn, Montserrat Utilities Limited (MUL) is the State-owned monopoly in providing three utility-services: water, electricity, and sewage. This privileged position requires independent scrutiny and public accountability to ensure that it serves the needs and expectations of stakeholders (e.g., customers, tax-payers, GOM, and creditors).
2. **Vital economic role.** Over the past several years, MUL has done well in ensuring continuity of public utilities since the volcanic crisis that began in year 1995. However, the generators appropriate for the immediate period of emergency remained in place and in constant use for the past two decades. Since October, 2016, the delivery of electricity has been interrupted frequently (for periods ranging from 20 to 30 minutes to more than 12 hours at a time in the worst cases). Numerous complaints have arisen from various stakeholders as normal life and business have often been disrupted. Any inefficiencies or disruptions in essential services have ramifications for the entire country, including the sustained development of flourishing small businesses and vibrant job-creating micro-enterprises. The public sector has suffered significant losses of productivity in its internal operations, including early closure of offices in some instances. By extension, each period without normal adequacy of utilities affected delivery of services to the public, either directly through the central Government or indirectly through State-owned agencies and statutory corporations and their various contractors and suppliers.

## How We Performed This Audit

3. **Interviews.** Initially, we engaged in high-level interviews with the Managing Director and Financial Controller of MUL. With the guidance provided by these meetings with senior officials, we proceeded to devise questionnaires and data-gathering techniques suitable for the purpose of assessing (i) the efficiency, (ii) the effectiveness, and (iii) the value for money (from the perspective of the end-users), of the prevailing methods and systems of delivery of utilities.
4. **Reviews of relevant law, regulations and literature.** Before we began our fieldwork, we engaged in research of existing GOM laws and regulations in order to establish the legislative framework for our performance-audit. The programme of research then

encompassed the scholarly literature on such relevant subjects as (a) payment-methods, (b) utility-delivery systems, (c) public-sector efficiency and effectiveness, and (d) standards of service. It also included various local, regional and international sources to capture recent and current trends in these areas, with particular emphasis on journalistic articles, authoritative papers, eminent practitioners' experiences and perspectives, and academic case-studies of existing and emerging technologies for generation of renewable energy. Select lists of references used and of the sources that were researched are given in the relevant Appendix 2 and Appendix 3 hereto. These sources supplemented our reviews of various internal and external documents related to MUL's policies, operations, financial audits, and consultants' reports.

5. **Survey of customers.** Over 250 persons were surveyed during the last 3 weeks of July, 2017. This is a very significant sample-size exceeding 5% of the estimated population of Montserrat (and a correspondingly larger percentage of MUL's active client-base). It provided strong and unequivocal overall results in terms of persons' negative perception of the company, and perceptions of value for money regarding both water-service (excellent) and electricity-service (dissatisfying).

6. **Standards used.** This audit was conducted according to standards promulgated by the International Organisation of Supreme Audit Institutions (INTOSAI) for performance-audits. Those standards require that we plan and perform our audit in order to obtain sufficient and reliable evidence to reach a reasonable conclusion about the performance of the MPS with regard to [a] its efficiency, [b] its effectiveness, and [c] the value for money that its services provided to its tax payers during the period under review.

## Main Findings

7. **Excellent delivery of water and sewage.** Despite a number of inefficiencies in other areas of operation, MUL provides a reliable supply of potable water to businesses and households. It also handles sewage-collection across the island at no charge to users, although there is no contractual arrangement for the further treatment of sewage and for the re-use of waste water.

8. **Frequent loss of electricity-service.** Reliance on old diesel-fuelled generators, which are best used for emergencies and for short periods, has caused both high operating costs and numerous disruptions of power in the past several months. Every customer has been affected and there is a very high level of dissatisfaction, which is aggravated by widely reported damage to customers' appliances and electronic items. Most clients were never compensated for such losses.

9. **Many persons prefer online/card-based payments.** Over 40% of interviewees in our recent surveys were in favour of using online payments, electronic banking channels, and debit-cards or credit-cards for both in-person and online payments. However, MUL does not provide these options (except for direct deposit through the local banks).
10. **E-Government has started but not widely used.** Some public services are already online (e.g., ferry and MOVA), but MUL has not progressed beyond providing a website, which is solely for general information, rather than transactions and online account-management.
11. **Paper remains dominant.** Notwithstanding the wide availability and usage of social media, websites, electronic banking, smart phones, mobile devices, and wireless Internet-connections in Montserrat, MUL's client-facing operations remain in manual processes and offline modus operandi. This is costly and inconvenient to Montserratians at home and abroad, and to potential residents, businesses, and investors. It also makes the local economy uncompetitive with neighbouring islands.
12. **Status quo is very costly.** The cost of manual processes and of cash-handling is extremely high versus all other payment-methods, encompassing (a) labour-costs, (b) handling costs, (c) insurance-risks, (d) duplication of efforts, (e) time-costs, (f) paper and stationery costs, (g) printing costs, (h) transportation-costs, (i) storage-costs, and (k) all of the attendant risks and inconveniences that each of these variables imposes both on MUL and, by extension, the GOM and on all of its stakeholders and tax-payers. Moreover, use of old generators and fossil fuels imposes high and growing costs of operation, of maintenance, and of repairs/replacement.
13. **Retarded economic growth.** The adverse impact of operational risk and of reputational risk is severe in such cases, because, among other effects, inefficiencies in payment-systems and delivery of utilities affect every social and economic activity. Various sectors (e.g., manufacturing, agriculture, tourism, and financial services) are under-developed and need to be facilitated and enhanced. Therefore, any worsening of service-delivery is a further disincentive to micro-enterprise and small-business development on the island, and it stymies overall economic progress whereas local procurement is ideal in most circumstances. Such circumstances also deter new investors and tourists from coming to the island and/or from remaining and returning, respectively, for the long term.

## Key Recommendations

14. **Implement solar energy.** MUL can thus ensure sustainable national energy-security instead of relying solely on imported fossil-fuels, which have many negative externalities, price-volatility, and supply-risks. It can reduce the various risks and costs of the status quo by

taking full control of its energy-supply from renewable sources. In turn, MUL can create new revenue-streams by offering (a) installation, (b) maintenance, and/or (c) financing of solar photovoltaic systems to clients. This will also reduce the total price of power to the customers.

15. **Adequately fund MUL's capital-budget.** For too long, the company has struggled to get adequate and timely funding for repairs, for upgrades of infrastructure, for replacements of major assets, and for purchase of new assets (including vehicles, equipment, and generators). In several instances, the company has taken a short-term approach, incurring expensive rentals instead of investing in long-term ownership of key assets. Strategic planning and funding are vital to minimise risks, to optimise cost-management and to improve service.

16. **Enable card-payments.** Install wired or wireless electronic device-readers for payments in person as soon as possible, and also activate online payments. These measures will facilitate trade, travel, and tourism, while also raising the modern profile of the country in line with the expectations of sophisticated consumers, business-persons, returning Montserratians, and prospective investors. This deserves to be treated as a matter of utmost priority and urgency for reducing the Government's current costs, and for improving both the effectiveness of revenue-collections and the satisfaction of stakeholders.

17. **Make e-Government the default.** Within 3 to 6 months, upgrade the current MUL website and/or create a central e-portal for all of the public utilities. This will produce several immediate benefits: e.g., (a) create synergies, (b) encourage inter-departmental co-operation, (c) speed collections, (d) increase compliance-rates, (e) ensure real time accounting and reporting for the prompt actions of all key decision-makers, (f) reduce the costs of the current archaic modes of manual processes and cash-only methods of payment, and (g) consolidate cash-management for even greater cost-savings by MUL. With effective website-management to ensure that all content is correct, complete and current, and with search-engine optimisation (SEO), this e-portal can be a powerful revenue-generating and value-creating multifaceted interface to market the company's products, services, culture, history, venues, events, and activities. Among its several advantages, this will support an essential online-payments infrastructure that will significantly reduce the cost, the time, the risks incurred, and the efforts currently expended in the area of collections, together with the related administration, accounting, and reporting.

## Auditor's Conclusion

18. The quality and the delivery of water and sewage are excellent and the supply of power has generally been very good over many years. However, this customary high level of electricity-service has changed fundamentally since October, 2016, with the recent spate of recurring (and mostly unannounced) outages. During the past year, therefore, customers have received power-service well below their expectations, with numerous instances of loss of power, and widespread

damage to electrical appliances and electronic items. Moreover, MUL's information-systems, communication-patterns, client-service channels, and payment-methods are, with few exceptions, extremely outdated, very expensive to maintain, and neither efficient nor effective. The current payment-system, procedures, and practices make little use of 21<sup>st</sup>-century technologies and tools, and they systematically underutilise many of the functionalities embedded within already available or installed hardware and software.

19. In turn, this means that GOM, the sole owner of MUL, is getting a very low return on investment for the many millions of dollars spent during the past two decades on infrastructure and, in particular, (1) under-use of electronic information and communication, and (2) inadequate payment-methods and payment-systems. Overall, it is not serving the public nearly as well as it could be doing, and it is certainly not advancing the country towards the GOM's published Vision for 2008 to 2020, wherein information and communications technologies (ICT) become one of the central pillars of the new Montserratian economy and a pivotal enabler of private-sector development. These tools and technologies are especially vital for economic growth and employment through (a) the nurturing and transformation of incipient microenterprises, (b) the launch and export-readiness of innovative products and services, and (c) the strategic local, regional and international expansions of established small and medium enterprises (SMEs).

20. The operations for generation and delivery of utilities are satisfactory from the perspective of health and safety for employees as well as for the population. Water-quality, in particular, is extremely high and needs little to no treatment, except the minimum to comply with international standards. MUL's water-prices are very low, but its rates for power-supply rank at or near the highest in the Caribbean (Situation Report, 2015, p. 7, 8). However, the reliance on fossil-fuels more than 20 years since the volcanic crisis of year 1995 has impaired both efficiency and effectiveness of power-services. Diesel-fuelled generators have proven to be increasingly expensive and unreliable over the past year.

# CHAPTER 1: INTRODUCTION

## Background

1. This report represents the first performance-audit of MUL. This performance-audit focused on the forms, the methods, and the systems of utilities, of payments, and of customer-service, with implications (a) for efficiency, (b) for effectiveness, and (c) for value for money to citizens and tax-payers. MUL's services and operations, encompassing employees, the public, contractors, and suppliers, constitute fundamental and vital aspects of daily operations across the island's economy. In turn, activities of the GOM and throughout the MPS constitute the biggest part of the flow of funds and full-time employment in the national economy and have numerous multiplier-effects.

2. **Rationale.** Operations within the MPS and State-owned entities such as MUL influence fiscal, economic and other factors that impact on public services and payment-systems. As a result, we have performed an extensive review of authorities, of scholarly literature, and of regional and global best practices (Cayhan, 2008; Deng, 2008; Ebrahim & Irani, 2005; Heeks & Bailur, 2007; Nasim & Sushil, 2010). It is envisaged that such a review will, over time, assist all stakeholders in devising a more coherent framework to guide this and following audits, and in creating more value to citizens and to public-sector decision-makers alike. MUL and GOM can greatly reduce learning-curves and save implementation-costs by systematically embracing a multidisciplinary approach to learning from public-sector experiences in other countries both what is best avoided and what is highly effective and efficient (Abdullah & Kaliannan, 2006; Al-Busaidy & Weerakkoddy, 2009; Al-Ghaith, Sanzogni & Sandhu, 2010; Ghosh & Lahiri, 2003; Guanghu, 2009; Joia & Magalhaes, 2009).

3. **The Context of the Information Age.** The theme of e-Government is well developed both locally and regionally, including electronic filings and tax-refunds with the Inland Revenue Department and Customs & Excise Department (e.g., in Barbados and in Trinidad & Tobago). The Eastern Caribbean Currency Union (ECCU), of which Montserrat is a member-country, very well exemplifies e-Government in having a fully functional automated banking clearing house, an electronic securities-exchange, and an electronic securities-repository ([www.ecseonline.com](http://www.ecseonline.com)). MUL has many opportunities, within this context, to improve its own operations, to lower its costs, to boost its returns on cash and investments, and to access information and funding at lower cost. Furthermore, its diverse local and international stakeholders (e.g., diasporic Montserratians and overseas property-owners) increasingly expect full use of electronic and online payments, of telecommunications, and of e-services.

## Local Context

4. In short, the GOM, along with its various corporate entities such as MUL, has such a predominant size in the local context that it must not only provide policies and laws that facilitate business, trade, and economic activity by citizens and private businesses, but the State must also lead by daily example in its own diverse and far reaching operations: for example, in efficiently designing, specifying, acquiring, and deploying appropriate (i) software and hardware, (ii) energy and technologies, (iii) systems, (iv) people, (v) training and user-support, and (vi) processes, all of which contribute to a fully modern apparatus for accelerating, at the least cost per transaction, provision of utilities, payment-methods of all types, and effective client-service channels, both inward and outward, and both local and foreign. This is vital both for governance and for national development.

## Objectives of the Audit

5. The audit sought to examine (a) the efficiency of actual utility-delivery, payment-methods, and client-service, (b) their effectiveness, and (c) their value for money to stakeholders, to the GOM itself, and, by extension, to the citizens of Montserrat. Finally, the study aimed to identify, to measure, and to assess any performance-gaps between (i) the usefulness and the feasibility of **existing** technological modalities for utilities, for payments, and for client-service, and (ii) their actual degrees and rates of usage, as well as (iii) their expected contribution to the Government's enunciated **National Vision** and to the **Sustainable Development Plan (SDP) 2008 to 2020**.

## Scope of Performance-Audit

6. The scope of this performance-audit was a ground-breaking, investigatory pilot-project to examine the status and the performance of (i) utility-services, (ii) payment-systems, and (iii) client-service in MUL, and their interfaces with the rest of the economy overall. Special regard is merited respecting (a) the enabling legislative framework already established for the country, and (b) the modern, competitive telecommunications infrastructure thriving on the island. We included all functional departments in our review, emphasising their impact on utility-delivery and quality of service to customers. Financial and other data-analyses focused on the post-merger period (years 2008 to 2016). The most recent audited financial statements were for year 2015.

## Scale of Performance-Audit

7. The scale of this performance-audit encompassed most activities within MUL that deliver utilities, that handle receipts or payments in any form, and that interface with customers in any way.

## What We Excluded from this Audit

**8.** We excluded comparative compensation analyses and other cross-country reviews. We also largely excluded regional data-sets, except for background information, thus emphasising MUL specific current and historical data-sets. Future performance-audits and MUL's own strategic plans will need to address these areas in order to reach optimal human-resources management, to sustain effective financial management, and to exceed comparative Caribbean standards and best practices.

## Audit Standards Used

**9.** The standards used to perform this audit-engagement and to assess the findings of this audit include ISSAI 1, ISSAI 100, ISSAI 3000, and ISSAI 3100.



# CHAPTER 2: LEGISLATIVE REVIEW

## Laws and Regulations

**10.** In this section, we will review the legal framework (applicable Laws, regulations, and policy-documents) that underpins the delivery of utility-services, payment-methods and payment-systems in and around the MPS, and the general business-environment within which MUL operates.

**11. The Montserrat Utilities Limited Act (2008)** governed the merger of the previously separate utility-providers of water/sewage and electricity to create MUL. It provides for the continuation of ownership of all assets derived from these two public-sector companies, as well as for the seamless continuing provision of these public utility-services.

**12. The Electrical Supplies Act (1970) (last amended 1981) (last S.R.O. 1994)** regulates the supply of electricity with MUL specified as being the sole provider on the island (section 3, page 7). Section 26 provides for MUL to harness geothermal energy anywhere on the island. However, no provision is made for other renewables (e.g., wind or solar power), nor is provision made for interconnection of customers who install personal power-systems (e.g., solar photovoltaics) for their own use, whereby they could contribute their surplus to the national grid, and, conversely, supplement their own supply during hours that sunshine is limited.

**13. The Electrical Supplies Order (1994) (last amended 2000)** provides the list of fees and prices that MUL may charge to its customers. Clearly, these are long out of date and not satisfactorily in line with MUL's current and projected requirements to maintain equipment, vehicles, and infrastructure. Whilst the fuel-surcharge keeps abreast of the landed cost of imported fuels for MUL, the basic tariff has not been revised for nearly 2 decades and MUL's revenues have been insufficient to cover all of its costs, resulting in accumulated deficits.

**14. The Licensing of Utility Services Act and subsidiary legislation (2003) (last amended 2011).** This consolidates several laws and regulations, including the **Electricity Supply Order (1994)** (last amended by S.R.O. 2000) and the **Interim Water Supply Regulations (1967)** (last amended 2003). This law provides for the licensing of providers of electricity-services, of water-services, and of sewage-services. Paragraph 10 refers specifically to geothermal power, but also allows licensees to prospect for "any other source of energy throughout Montserrat". In paragraph 14, the law restricts licensees in their ability to set or to change utility-prices to customers: tariffs must be charged only according to orders approved by the Governor of Montserrat and published in The Gazette. These rates have not been changed for many years.

**15. The Electronic Transactions Act (2009)** provides a fully enabling legislative framework for electronic transactions, payments, contracts, invoices, communication, and

information throughout the MPS and the general economy. Importantly, whilst most of its provisions are optional, Part 9 (paragraph 36) of this law **mandates the creation of an e-Business Advisory Board**. Furthermore, the amendments thereto by Act 9 of 2011 strengthened the Act of 2009 by giving precise details about (1) the number of persons to be appointed to this Board, (2) the role of the Governor in their appointment, and (3) the procedure for the appointment of the Chairman of this Board. As a major economic actor in Montserrat, MUL could be a contributor to this Board.

**16. The Payment Systems Act (2008)** creates a broader provision of the requisite national financial architecture for the effective development of infrastructure in support of all electronic banking, electronic payments, electronic remittances, and electronic delivery of financial services of various types. Importantly, in Part 3, paragraph 4, gives pre-eminence to the electronic aspect of the payment-system for Montserrat, under the aegis of the Eastern Caribbean Central Bank (ECCB). Furthermore, in Part 3, paragraph 5, **it mandates that large transactions must be conducted through the electronic central banking system**. This is fundamentally distinct from the traditional use of paper-based cash, personal cheques, corporate cheques, bankers' drafts, et cetera. The GOM's vision for Montserrat features ICT as one of the central pillars of the redevelopment of Montserrat, but GOM-owned MUL lags in the use of ICT and has no provision for credit-card payments or for online payments via its website.

## Policies

**17. The Montserrat Energy Policy 2016 to 2030** declares a national framework for moving to sources of renewable energy and reducing reliance on imported fossil-fuels. Beyond geothermal energy, it provides for solar energy to become an integral part of the national power-supply through MUL's transmission and distribution network. Through a pilot-project of 250 kilowatts and a second phase of 750 kilowatts, it is envisaged that solar photovoltaics would provide MUL up to 1 megawatt of power to balance power from generators. This is sufficient to meet the gap between the night-time trough of energy demand and the mid-day peak of energy demand.

**18. The Montserrat Sustainable Development Plan 2008 to 2020: Journey to Sustainable Prosperity**, which espouses a national vision of **"A Healthy and Wholesome Montserrat"** (SDP, 2010, p. i), explicitly captures the concept of the technological drivers of economic progress and national re-development. The section entitled Strategic Goal 1: Economic Management, sub-section Issues and Challenges, succinctly states: "Information and Communication Technology (ICT) – The development of the ICT sector has transformed life in Montserrat in many ways . . . . There is the challenge to liberalize and regulate this sector so that it fulfils its potential as the basis for the transition into an information society, thereby profoundly influencing business processes as well as our social lives." (SDP, 2010, p. 39) [emphasis added].

Relevance to MUL: By extension, this requires every part of GOM, including statutory corporations such as MUL, to invest in appropriate current ICT throughout its operations.

**19.** Several corollaries for private-sector development follows under the sub-heading Strengthening and development of the private sector: “Focus placed on the implementation of initiatives to support the strengthening and development of the private sector, in particular, small and medium-size enterprises in these sectors, thus enabling them to fully assume a leadership role in the process of economic growth. These initiatives will include ensuring a facilitating policy, regulatory and institutional framework for business development, facilitating increased access to capital and strengthening of investment promotion and trade facilitation. Also, a strategy of outsourcing and divestment of government activities will be pursued.” (SDP, 2010, p. 40) [emphasis added]. This clearly announces the GOM’s policy-focus on enabling economic actors to function in a competitive regional and global environment, and recognises that the future of Montserrat depends on a smaller, more agile public sector facilitating a much larger, much stronger, and much more technologically integrated private sector and national economy.

**20.** Of great relevance and importance for the background to this performance audit is the ensuing sub-section entitled ICT infrastructural and institutional development: “Ensuring that the required ICT infrastructure and institutional framework and facilities are in place, that is, a facilitating legislative, policy and regulatory framework for investment and business activities, as well as appropriate facilities for the effective delivery of services to the various customers.” (SDP, 2010, p. 40) [Emphasis added].

**21.** Relevance to MUL: MUL’s efficient, effective and reliable provision of utilities is essential to the overall development of GOM and the rest of the economy. MUL plays a pivotal role in the realisation of this policy-priority as, among other reasons, efficient, effective, and reliable electricity-supply is vital to the operation of all ICT equipment and systems, both within GOM and MUL itself, and within the rest of the economy, including high-priority sectors such as tourism.

**22. Budget Speech 2014-2015: Restoring growth; expanding opportunities** gives absolute clarity about the GOM’s policy-related priorities for various economic sectors, including information-technology as a pillar of the new economy: “Government has committed to lessening the overall dependence not only on government expenditure as the main driver of growth in the economy, but also reducing our almost total dependency on aid. In this regard, we have identified the expansion of the Agricultural, Mining & Quarrying, Manufacturing, Tourism and Information Technology sectors as the main pillars for long-term growth.”

**23.** Relevance to MUL: MUL’s efficient and effective delivery of utility-services is pivotal to the development of all other sectors. The adoption of local sources of energy (e.g., solar power, wind, hydro-power, and/or geothermal) is an essential part of achieving the national vision of self-reliance and sustainability, while reducing chronic aid-dependency, overreliance on imports, and vulnerability to external supply-chain shocks and price-volatility.

## CHAPTER 3: ORGANISATIONAL REVIEW

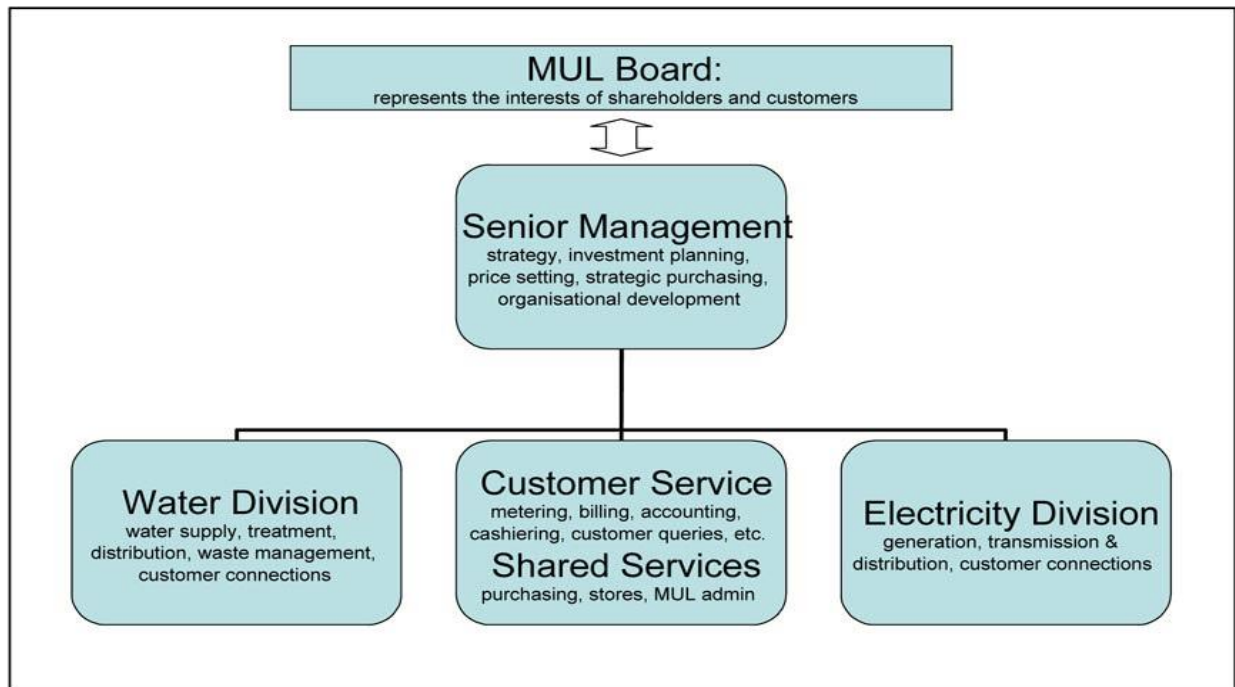
**24. Organisational Structure.** The company is organised in a conventional functional structure in line with the three public utilities that it provides: water, sewage, and electricity. The majority of employees are in these technical and functional areas, each of which has managerial/supervisory personnel. Oversight is provided by the Managing Director, who reports to the Board of Directors, which includes representatives of the GOM (e.g., the Financial Secretary, who is currently represented by the Director of MCRS; and the Permanent Secretary of the Ministry of Communications and Works, who is also serving as Chairwoman of the Board). Even though MUL is registered under the Companies Act, the Cabinet of GOM appoints all members of MUL's Board of Directors.

**25. Human Resources Management.** The current staffing is a legacy of the pre-merger separate water-company and power-company. It also reflects the much larger numbers of employees that were needed when the island's population was more than twice its current size (until the volcanic crisis in the year 1995). Whilst significant attrition has occurred through resignations and retirements during the past decade, available evidence indicates that the company remains over-weighted in administrative functions and under-weighted in some technical skills. Some positions have remained vacant for extended periods, reflecting the lack of local resource-persons in some technical areas and the difficulty in creating attractive compensation and work-environments to attract and to retain competent immigrants or trainees. The strong tendency for long-term tenure among employees has resulted in a very slow pace of gradual downward adjustment in the company's overall headcount. For the year 2015, salaries and wages alone represented 2/3 of administrative expenses (Annual Report, 2015, p. 29).

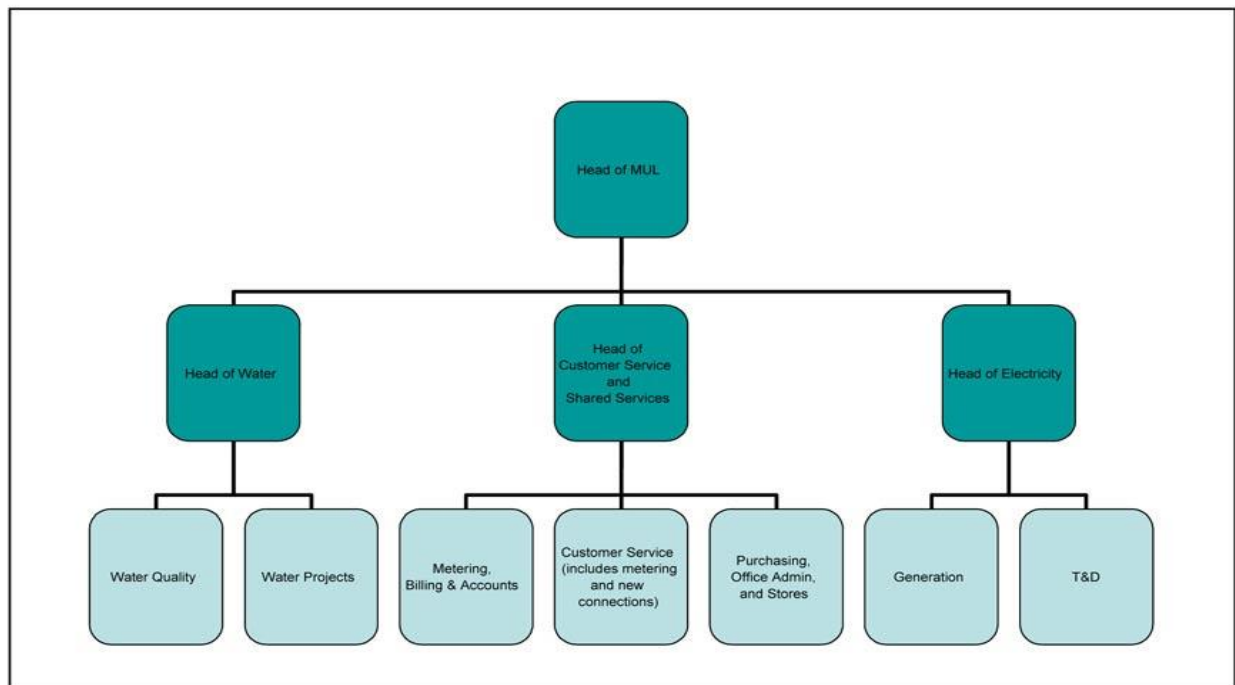
**26. Financial Management.** The company enjoys a stable cash-flow from a broad range of clients across the economy. It is thus able to meet its current expenditures from current revenues without relying on debt. However, capital-expenditures have proven to be difficult to handle internally as existing cost-structures consume all or most of the revenues, leaving little or nothing for major investments. In turn, this creates a dependency on GOM's approval for long-term projects, and the necessity for third-party grants or funding. MUL has tended to report annual net losses, but it has achieved profitability in a few years, including E.C.\$1.15 million of net income in the year 2015, thus showing the potential for significantly improved operational management and financial results. In addition to contingent liabilities relating to the defined-benefit pension-plan for its managers, MUL faces an enormous risk-management issue in the form of a large value of uninsured assets for transmission and distribution of utilities [note 24 (ii), Annual Report, 2015]. Historically, MUL has already experienced nearly 100% loss of this infrastructure as a result of Hurricane Hugo in September, 1989 (Situation Report, 2015, p. 2). Two hurricanes in September, 1995, caused widespread damage to electricity-distribution infrastructure and disrupted service to the population (Situation Report, 2015, p. 3).

# MUL ORGANIZATIONAL STRUCTURE

## By Activity



## By Team



Source: Montserrat Utilities Limited at <http://mul.ms/index.php/about/company-structure>

**27. Operational Management.** An aging infrastructure and limited financial capacity have combined to increase the cost of repairs and maintenance over recent years. Since the volcanic eruption in year 1995, the company has tended to remain in a crisis-management mode, rather than proactive maintenance and a paradigm-shift from fossil-fuels to renewable energy. E.g., (a) temporary housing of generators, (b) repairing old generators rather than upgrading them, and (c) mending leaking water-pipes rather than upgrading infrastructure and materials. For instance, the audited financial statements for the year ended December 31, 2015, showed that various fixed-asset categories were very near the end of their useful lives:

- (a) Fixtures and Fittings were  $(100\% - [\$108,250 / \$804,291] =)$  **87% depreciated**;
- (b) Vehicles were  $(100\% - [\$241,341 / \$2,244,219] =)$  **89% depreciated**;
- (c) Plant and Machinery were  $(100\% - [\$5,379,649 / \$26,737,994] =)$  **80% depreciated**.

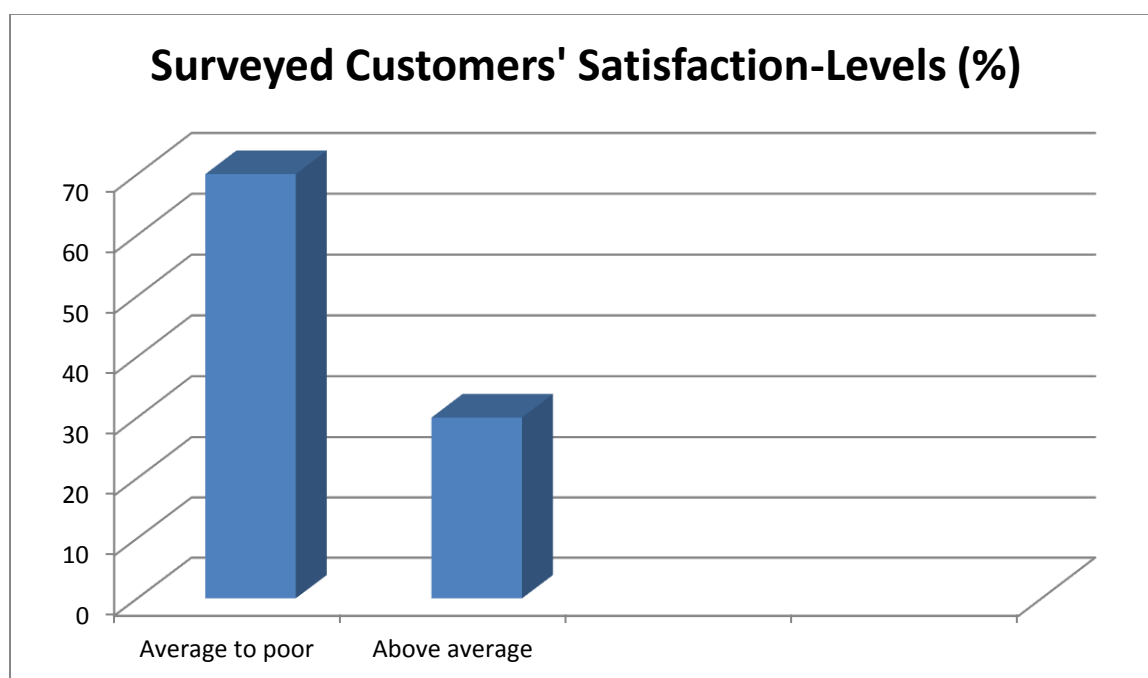
**28. Upgrades.** In recent months, the new facility for power-generation at Brades has been completed, representing a major upgrade for electricity-service. However, this perpetuates the outdated and increasingly expensive paradigm of dependence on imported fossil-fuels, instead of investing in renewables such as solar power that make use of abundant local inputs with immediate opportunities for reduced cost to MUL and reduced prices and risks to customers. Furthermore, MUL's service-vehicles and many items of equipment and fixtures are in urgent need of repairs, of replacement, and/or of upgrading. Subsequent to our fieldwork in July, the outgoing Managing Director confirmed that a loan of E.C.\$500,000 was obtained by MUL for the replacement of its vehicle-fleet, as repairs and maintenance were increasingly expensive versus buying new vehicles.

**29. Rental versus buying.** With limited access to funding for capital-expenditures, MUL's management has tended to favour rental of equipment such as generators. However, the quoted costs for each option (e.g., U.S.\$55,000 monthly for rental versus U.S.\$1 million for purchase) show clearly that rental is optimal only for short periods (e.g., during a crisis or to accommodate a major overhaul of owned generators). For instance, a 10-year useful life would yield an annual cost-amortisation of U.S.\$100,000 for a purchased generator, whilst a rented generator would cost more than that in just two months. Hence, a strategic approach to MUL's financing of operations and to its capital-budget would yield a much lower long-term average total cost per unit of utility delivered.

# CHAPTER 4: OUTCOMES & RECOMMENDATIONS

## Findings of the Audit

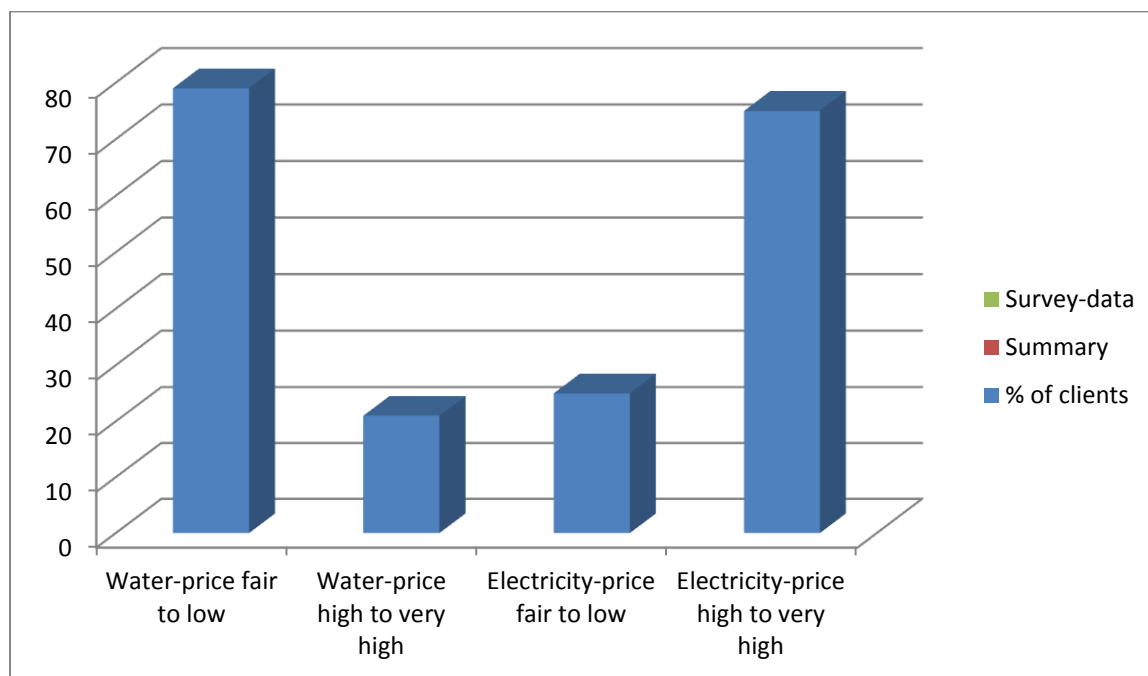
**25. Average to poor service-ratings.** Those interviewed/surveyed generally gave average to poor assessments of MUL's general handling of client-service both to its employees (internal clients)(e.g., several years without salary-increases) and to its customers (external clients) (e.g., no compensation for damaged items; no customer-surveys; and little or no communication with the public regarding power-outages, before and/or after they occur). This also affects how members of the staff treat customers. This is distinct from the delivery of the utility-services (e.g., water-service is overwhelmingly viewed as excellent by customers islandwide).



**26. Lack of insurance for major assets.** The bulk of the infrastructural assets are not insured, posing a major risk to MUL, to GOM, and to the economy in the event of future natural disasters. In turn, all operating assets need to be reviewed at least annually for adequacy of insurance-coverage, as under-insurance can be almost as dangerous as non-insurance.

**27. Recurring complaints about electricity-service.** Frequent interruptions of service have occurred in the past 18 months (and especially during the period November, 2016, to July, 2017). Every household and business was affected on multiple occasions as both scheduled load-shedding rotating across communities and unplanned outages affected the whole island's

power-supply at various times. By contrast, the power-company in the Cayman Islands achieved an average availability-index of 99.92% during the first quarter of 2017 (First Quarter Report, 2017) (<https://www.cuc-cayman.com/investor-relations/quarterly-reports/>). This is one of several comparable cases that could be cited of countries that have broadly similar characteristics but have overcome their limited resources, unfavourable circumstances, and various challenges, to provide excellent utilities: e.g., small islands; Overseas Territories; and past experience of major natural disasters (e.g., earthquakes, hurricanes, tsunamis, and/or floods) during the past two decades.



**28. High quality of water-supply and sewage-services.** It is encouraging that, despite inadequate internal funding for infrastructure, MUL has been able to maintain a reliable service in these two utilities. MUL's Water and Wastewater Department performs regular testing in its own laboratory. However, this laboratory has limited equipment and capabilities, and this requires the exporting of samples, which costs about E.C.\$10,000 per trip. Therefore, for added assurance, samples of water are delivered every year to the Environmental Unit of the Caribbean Public Health in Trinidad & Tobago for independent laboratory-testing; high quality-ratings have been consistently achieved.

**29. Inadequate water-storage.** MUL's water-tanks are distributed over the island and vary widely in adequacy. Reports indicate adequate storage for Salem and for St. Peters, but very low storage for Lookout especially and for St. Johns generally. Several districts have experienced increasing numbers of residents and/or businesses, but without commensurate



investments in extra water-storage (G.O.M., 2012) [ref. 41]. Water-rationing has sometimes been implemented. This has implications for sanitation, for business-development, for customer-satisfaction, and for public health.

**30. Marketing and Client-Relationship Management are minimal to nil.**

There is no Marketing Department or dedicated Communications/Stakeholder Relations Officer. CRM software is non-existent. No surveys of customers have been done and there is no client-loyalty or customer-oriented recognition/rewards programme.

**31. Lack of monitoring.** From the evidence that we found, there is no comprehensive system that is documented for checking, for monitoring, or for reviewing critical metrics such as (a) service-quality, (b) client-satisfaction, (c) fault-calls, and (d) disruptions to utility-delivery. Matters are usually handled (e.g., by telephone or in person) whenever they arise, but without records in most cases. Hence, in many instances, valuable organisational history, service-related data, and useful statistics are unavailable and/or they are available, but are not being used.

**32. Cheque/cash vs. electronic options.** MUL's employee-payments are done via direct deposits to bank-accounts, but most other local payments are still being done by cheques. As a vestige of the 20<sup>th</sup> century, this paper-based, labour-intensive payment-system is both cumbersome and expensive to MUL itself; it also tends to be slow, frustrating, and inefficient in the eyes of payees. With bureaucracy come various measurable deficiencies in service-related delivery and attitudes. Likewise, MUL gives its clients no options for card-payments. With the ubiquitous availability of text-messages, free electronic mail, free WhatsApp, landlines, and mobile telephones, all MUL customers, payees and beneficiaries could receive prompt receipt-confirmations, payment-alerts and cheque-availability alerts, which could also be automated.

**33. No online payments or accounts.** MUL has a website but this is purely for informational purposes. Much of the information is static and out of date. Historically, clients could register for online accounts but this functionality has been discontinued. This is a major inconvenience to customers, and especially to businesses (e.g., accounting purposes, real-time reconciliation, and payment-history), to travelling customers, and to off-island property-owners. So far, it offers nothing more than the sending of monthly bills to requesting clients by e-mail.

**34. Training is lacking.** Every internal interviewee acknowledged this point. In the absence of a local training institute for the required technical skills, MUL engages primarily in on-the-job learning for its staff. The lack of a systematic approach to training and development creates a steep learning curve for new recruits and limits the progression of long-term careers. Such an environment also discourages potential high-calibre candidates from applying for vacancies and/or from remaining with the company over the long term. This has significant adverse implications for succession-planning, for operational efficiency, and for service-quality.

## Analysis of the Findings

**35. Poor/under-use of electronic systems.** At a basic level, MUL's internal administrative system has improved from an all-cash and manual-process historical basis in the 20<sup>th</sup> century towards substantial use of electronic data-entry, of electronic accounting, and of electronic approval and processing of cheque-payments, coupled with increasing use of direct deposits to bank-accounts. However, in many client-facing functions, there is little or no use of electronic channels (e.g., the website is greatly under-utilised). The availability of e-commerce websites, online accounts, and online banking would enable real-time confirmation and viewing of transactions by employees as well as all customers, suppliers, or stakeholders interacting with MUL in any capacity.

**36. Utility-deliveries are adequate, but infrastructure is aged.** Large and growing risks and inefficiencies plague the current infrastructure. Generally, MUL is meeting its mandate to provide island-wide coverage of all three utility-services, but water-storage is well below standard 3-day levels. Power-supply is under constant risks of failing generators and costly repairs. The majority of water-pipes are many years old, and have been fixed or replaced mostly when they break, rather than strategically replaced and upgraded year by year.

**37. Over-reliance on aid.** Capital-budgets are chronically under-funded for the effective deployment of services and the optimisation of the infrastructure. In the words of one senior manager, MUL has for too long been "operating on a shoestring budget, and walking a tightrope". Inadequate funding, budgeting, and planning perpetuate a cycle of crisis-management and dependency. This status quo, plus the large uninsured risks, poses huge and growing threats.

**38. Policies and laws are outdated.** Since the MUL Act of 2008, which was primarily for the purpose of merging predecessor utility-providers into one entity, little or no attention has been paid to the regular review of tariffs, of policies, and of the legislative framework. The Montserrat Energy Policy, for instance, will necessitate the amendment of several laws to enable solar energy, wind energy, and geothermal energy to be appropriately regulated, encouraged, and integrated into the national utility-service infrastructure. In particular, businesses and households need to be assured of the process for interconnection with the power-grid both for their benefit and for MUL's benefit. Meanwhile, no legislative framework exists for the provision of sewage-services by MUL. Clarity, cohesiveness, harmonisation, and currency of laws and policies are vital aspects of maintaining an effective environment for public services and high value for money.

## Discussion & Conclusions

**39. Many opportunities for improvement.** Clearly, there is much room for improvement within both the service-channels and methods of payment available, and in the

overall efficiency and effectiveness of utility-services. MUL itself, the GOM, and citizens will save considerable amounts of time, of effort, and of cost through 24-hour-per-day access to electronic channels for information, communication, service, and online payments. This is especially important for the large overseas constituency of expatriate Montserratians (which is much greater than the on-island population), as well as foreign visitors, tourists, expatriate residents, investors, international businesses, importing local enterprises, cruise-ships, and ferry-passengers. Airlines and ships have 24-hour-a-day schedules across all time-zones, and, correspondingly, modern consumers expect to have the convenience of (nearly) 100% up-time for all utilities (e.g., water, power, lighting, fuel, telecommunication, and Internet-service, including mobile and wireless connectivities), systems, websites, payment-methods, and channels for e-commerce, including e-Government.

**40. High costs of electricity; inefficiency.** Inefficiencies in the utility-sector cause a series of undesirable ramifications throughout the society, the financial sector, the business-sector, and the rest of the economy. Firms and individuals with higher than necessary basic expenses (e.g., utility-costs) will have reduced local spending power, and will, in turn, have difficulties in honouring their timely commitments to third parties, who will then have similar effects and challenges. The impact of imported fuels represents a constant drain on the country's foreign-exchange reserves, as well as a business-risk to MUL, and it perpetuates a state of aid-dependency both for MUL and for GOM. MUL's annual cost of diesel is around E.C.\$10 million (Budget Speech 2014-2015, p. 16). As of year 2014, E.C.\$34 million had also been spent on exploring geothermal energy, but with no contribution to the national power-supply (Budget Speech 2014-2015, p. 16). The launch of the new power-station has been repeatedly delayed, cumulatively for years, beyond its anticipated completion by May, 2015.

**41.** Other forms of inefficiency throughout the structure and the operations of MUL incur both explicit fees and interest expenses, as well as opportunity-costs (e.g., time lost, productivity-impairments, lost income, missed returns on funds, and foregone purchases or investment-opportunities) many of which are irretrievable and irreplaceable (since time cannot be stopped, recouped, or stored). Waiting until things break or malfunction ultimately costs MUL (and, hence, GOM and Montserratians generally) much more in the long term than would be the cost of making regular, proactive investments in people, in technologies, in equipment, and in infrastructure.

## Recommendations

**42. Progressively implement up to 100% renewable energy.** Expedite the installation of solar power to reduce the risks of oil-price volatility, foreign-currency leakage, and supply-disruptions. In the short term, solar power (perhaps supplemented by wind-energy) is the safest, least-cost, and cleanest source of energy for electricity-generation. In the medium term to long term, hydropower and geothermal energy offer great potential for national self-sufficiency and exports. Solar energy can reduce MUL's own costs, while opening new sources of revenue if it follows best practice among utility-providers and also becomes a supplier of renewable-energy solutions to households and to businesses.

**43. Budget adequately for insurance, capital assets, maintenance and training.**

All vehicles, equipment and premises need regular maintenance for high performance. Some items are no longer usable; others are long overdue for repair or replacement. This incurs extra costs for temporary rentals, but the bigger cost is the opportunity-cost of poor or inadequate client-service and utility-delivery. Accumulated deficiencies in infrastructure, compounded by lack of insurance, pose risks to health and safety of workers and risks to clients' businesses, quality of life, and daily activities also. MUL could adopt a phased approach to funding and insurance. Likewise, every employee needs a strategic skills-enhancement programme (e.g., set an annual minimum for the number of hours of training per employee) and a career-building plan (developed collaboratively with tangible milestones and outcomes, and revised at least annually).

**44. Expand water-storage.** All water-tanks need periodic maintenance and repairs to maintain safety for employees and health of users. In turn, provision of additional water-tanks is urgently required in several parts of the island to meet growing demand and to comply with applicable local and international standards. Integrate this with disaster-management plans.

**45. Revise and harmonise laws and policies.** It is also highly recommended to review and to revise all relevant laws and policies to ensure that they are individually and collectively compatible with the movement towards renewables, for instance. Households and businesses need a clearly expressed framework for interconnection of solar photovoltaics and wind-power with the national energy-grid. Smart regulation, up-to-date laws, and ease of compliance will lead to higher rates of compliance overall and will speed economic growth, which will enhance local revenues both for MUL particularly and for the GOM generally. Furthermore, the absence of a legal framework for sewage-services (a situation prevailing for the past 22 years since the crisis of year 1995) is long overdue for redress.

**46. Optimise tariffs.** The rates charged to MUL's customers for utilities deserve to be reviewed urgently after many years of non-adjustment. For instance, as the global cost of fuel is less than 50% of its year-2014 peak, MUL's fuel-adjustment charge to clients has fallen from nearly E.C.\$0.90 per kilowatt-hour in year 2014 to E.C.\$0.59 in June, 2017. Some of these savings could be reallocated to MUL to strengthen its service-delivery. For instance, a gradual series of small increments in the basic electricity-tariff would allow improved *net revenues* to MUL, while still achieving a *total price* to the consumer below that experienced two to three years ago. Better net revenues are urgently required, among other reasons, [a] for overdue training and staff-development, [b] for improved compensation-packages for employees commensurate with skills and productivity, [c] for essential repairs, maintenance, and asset-replacements, [d] for self-insurance and contingency-funding, and [e] for much improved capital-works for national safety.

**47.** In particular, higher tariffs for tiers of high-volume discretionary (non-productive) usage would ensure that the highest-income households and large organisations, which have the highest

per-person consumption and which can best afford appropriately higher prices, will bear the main responsibility in the national interest. Progressively higher excise-taxes on imported fossil-fuels can also be used to finance essential infrastructural investments, while encouraging the nationwide switch to renewable energy for transportation and for electricity. Moreover, even a very small tariff (e.g., E.C.\$5 to \$10 per toilet per account per month) on sewage-services could easily [a] cover the cost of that utility-service, [b] reduce its current budgetary costs to the GOM, contributing to self-reliance, and [c] provide extra funds for necessary capital-expenditures, contributing to a safe infrastructure, and making MUL an increasingly sustainable utility-provider.

**48. Implement modern marketing and CRM.** It is imperative to strengthen and to equip the client-facing units of MUL with adequate resources, including [a] appropriate numbers and allocations of employees, [b] compliance-staff, [c] business-facilitation unit, [d] public-relations unit, [e] client-assistance unit, and [f] a comprehensive planned programme of in-house training and refresher-courses for officers at all levels to ensure the appropriate level of skills and the most effective staffing. Importantly, several certifications are not available locally and require plans and budgets for overseas training and re-training. Greater accountability is required in assessing MUL's staff in relation to client-focused objective metrics: e.g., (1) the number of inquiries, accounts, and complaints processed; (2) the incremental costs saved and/or revenues earned arising from effective client-relationship management, assessments, reviews, and audits; (3) the timeliness of error-corrections and disbursements of refunds; and (4) the timeliness in responding satisfactorily to clients' inquiries and requests. In short, move from a passive and reactive mind-set (e.g., waiting for clients to call/complain) towards a proactive and strategic marketing and client-relationship framework (e.g., reaching out to clients periodically).

**49. Monitoring and review-mechanisms.** Given the pervasive absence of documented evidence of any actively implemented systems for identifying, for monitoring, and/or for recording many aspects of client-data and communication, it is essential that every Department Head establish a standard template for weekly and monthly reporting of faults, of complaints, and of feedback from clients. In line with best practices, all reasonable efforts ought to be exerted to ensure that exceptional items are highlighted promptly for the soonest redress of (i) any disputes with clients, (ii) documentary deficiencies, and (iii) service-quality issues. Data-analysis can then ensue to show categories, trends, actions, costs, benefits, and progress in various service-delivery and client-relationship issues within each year and between years.

**50. Business-facilitation.** As 8 years have elapsed since the effective date of this law, the Financial Secretary and The Ministry of Finance and Economic Management must urgently implement, as soon as it will be practicable, the e-Business Advisory Council, as mandated by the *Electronic Transactions Act 2009*. Among other benefits, this can be the mechanism for value-added interface with the OECS Business Council and the related business-facilitation unit of the Eastern Caribbean Central Bank, as well as the Montserrat Chamber of Commerce, and various other private-sector entities and public-sector agencies that are focused on business-related initiatives: e.g., (a) internships, (b) work-attachments, (c) micro-enterprise development, (d) financing of start-up ventures, (e) export-promotion, (f) e-commerce, (g) website-development,

and (h) young-entrepreneur networks, training, and supporting ecosystems. As a major business-actor in Montserrat, MUL has a strategic role to play in and with these and other entities locally and regionally. Making Montserrat a better place for business directly impinges on the growth and profitability of MUL also. This kind of strategic, long-term perspective, alongside the nurturing of smart partnerships, needs urgent attention.

**51. Regular performance-reporting.** With leadership by the Managing Director and the Financial Controller, Heads of Department could entrench ICT-related best practices throughout the company with clear accountability for efficiency, for effectiveness, and for value for money. A Balanced Scorecard paradigm can provide a framework for creating managerial dashboards and high-quality quarterly and annual performance-reports at all levels of MUL. This can be integrated into a performance-based rewards-system, which is more effective than ad-hoc cost-of-living allowances or fixed salary-increases, which serve to increase operating costs regardless of results.

**52. Card-payments inward.** Within 6 to 8 weeks, MUL could enhance its entire payments-system and infrastructure, as a high client-service priority, including installing wired/wireless card-reading machines at every touchpoint. This will further the twin purposes (a) of revenue-maximisation and (b) of optimal value for money to stakeholders, through the deployment of credit-card/debit-card payment-facilities both in person, at cashiers, and online. Expatriates living on the island, travelling residents, overseas Montserratians, returning Montserratians, investors, and other stakeholders will all immediately benefit from greater ease of access, high levels of convenience, enhanced security, and the significant cost-savings of doing business with MUL, regardless of time-zones, of business-hours, and of their physical locations.

**53. Annual employee-surveys.** Each Department could perform annual surveys of employees to assess (a) attitudes towards their jobs and towards their employer, (b) the scope, the scale, and the intensity of usage of ICT, (c) new failures or successes in service-delivery, and (d) remaining performance-gaps, with ensuing personalised plans for human-resource development at the department level and, in turn, at the personal level with objective metrics for successful outcomes. Create an open environment in which valid criticism is welcomed and new ideas are embraced, regardless of their source or the rank of the contributor. Demonstrate, measure, and report satisfactory action on resolving at least one significant employee-related complaint or issue each year.

**54. Annual customer-surveys.** Each of the three main utility-services Departments could perform annual surveys of customers to assess (a) clients' level of satisfaction with utilities received, (b) public attitudes to MUL, (c) customers' usage of MUL's electronic and other channels, (d) stakeholders' perceptions of new failures or successes in service-delivery, and (e) remaining performance-gaps (e.g., persons' actual service-experiences versus their emerging needs, preferences, and expectations), with ensuing personalised plans for H.R. development and ICT

enhancements towards optimisation within each utility-service unit (Jones, Hackney, & Irani, 2007)[86].

**55. International accountability.** Audited entities are encouraged (a) to publish widely the results of their performance-audits, and (b) to hold public fora (at least annually). This will afford optimal engagement of the citizens in discussing and improving matters that affect their quality of life in interacting with the public sector. It will also offer greater accountability for tax-dollars, and particularly given that most expenditure is still being funded by grants, by Her Majesty's Foreign and Commonwealth Office (FCO) and the UK Department for International Development (DFID), by other foreign/external types of aid, and by concessionary multilateral agencies (such as the Caribbean Development Bank).

**56. Public-sector accountability.** Each year, MUL and each of its Departments could use the annual post-audit progress-reviews as opportunities for accountability within the public sector, including criteria for (a) individual officers' performance-appraisals, (b) merit-based increments, and (c) deserved promotions. It is essential to put the emphasis on the level, the quality, and the standards of service within the delivery of public services (Gummigle, Brewster, & Morley, 1994). Among State-owned and public utilities elsewhere (e.g., \*Cayman Islands, which provides all financial statements from years 2000 to 2016), best practice includes timely posting of audited annual financial statements, interim quarterly reports, and other current information on MUL's website. (\*See <https://www.cuc-cayman.com/investor-relations/annual-reports/>)

**57. Private-sector accountability.** Each year, MUL and each of its Departments could use the annual post-audit progress-reviews as opportunities for informing the public about:

(a) Improvements implemented and

(b) Achievements of faster, better service-delivery e.g.,

(i) Higher transaction-volumes of receipts/payments;

(ii) Reduction in the average speed of payment-processing;

(iii) Shortened time-frames for resolution of inquiries and complaints of all types; and

(iv) Reduction of costs per transaction and/or improvement in quality-metrics per unit of utility delivered.

**58. E-commerce.** Provide a central electronic portal to enable online registration of all types of customer so that they can view all of their accounts, payments, obligations, and/or refunds receivable in one consolidated account in a secure electronic environment. This will be especially helpful in achieving the highest possible rate of compliance and client-service with the large percentage of stakeholders in the Montserratian Diaspora worldwide. In particular, late payments and delinquency can be minimised with automated e-mail, personalised text-messages, and customised online communications. E-commerce also provides a powerful vehicle for improving the public image of MUL and Montserrat for investors, businesses, event-planners, tourists, and visitors. All of these categories are stakeholders either by being direct clients of MUL or by being indirect users of utilities through businesses and organisations served by MUL. It is

essential to excellent client-service to ensure that all website and other channels of information reflect complete, current, and accurate information, announcements, contact-details, and reports.

**59. Reliable utilities and cyber-security.** In light of (1) the several deficiencies identified during previous audits of MUL, and (2) the widespread, multiple, and frequently recurring unscheduled losses of power, Internet-services, and/or telephone-services in Montserrat during the period of October, 2016, to July, 2017, it is vital to implement and to maintain the following:

- (i) Robust, multi-layered power-sources,
- (ii) Enhanced resilient and electricity-failure-proof cyber-security mechanisms that are functioning 24/7, and
- (iii) System-redundancy for all departments of MUL.

The staggering loss of public-sector productivity during the past 12 months represents significant lost revenues to MUL directly, and also has ramifications for the entire society and economy of Montserrat, and could easily be prevented / reduced.

**60. System-availability and standards of performance.** The entire e-commerce and e-Government ecosystems require a very high standard of connectivity (e.g., best practice is at least 99.99% year-round availability of computer-systems, e-Government websites and portals, and all electronic payment-systems) and uninterrupted power-sources. Feasible solutions for this recommendation include these:

- (a) Installing uninterruptible power-supplies for each work-station (e.g., ensuring at least 2 to 4 hours of productivity per employee in the event of failure of the electricity-supply);
- (b) Installing at least one or two solar photovoltaic panels on each building to ensure reliable lighting in the event of power-failure;
- (c) Installing a generator for emergencies in the event that the normal electricity-service fails and/or the solar photovoltaic arrays are insufficient, at any point in time, to supply the peak-demand during work-hours;
- (d) It is extremely important to have routine checks, maintenance and practice-periods (e.g., monthly or quarterly) to ensure that all generators and back-up systems are still working satisfactorily and have adequate fuel-supplies;
- (e) It is also vital to ensure that adequate supplies, parts, fuel, and replacements are constantly in inventory, in the event of the failure or malfunctioning of any generator, stand-by system, back-up mechanism, or other power-source.

**61. Cloud-computing platform(s).** As a further enhancement of systemic resilience, of disaster-preparedness, and of business-continuity planning, MUL can move towards phased migration to one (or more than one) of the available world-class cloud-computing platforms (e.g., Google, Microsoft, or Amazon Web Services). These initiatives will offer such benefits as these:

- (a) Minimising of disruptions to service,
- (b) Accommodation of scalability of all end-user services with unprecedented flexibility,
- (c) Continuous automatic updates to the latest versions of all hardware and software,



- (d) Obviation of the traditional high-cost approach to ICT procurement, and
- (e) Achieving of much lower per-unit costs for the GOM overall, with positive budgetary ramifications for every MPS unit (Alsin, 2016) [15].

Whilst each of these leading cloud-computing platforms is well able to accommodate every conceivable scale and type of MUL and GOM use, a portfolio-approach (e.g., using one provider-platform for some services, and another platform for other services) can further reduce risks and diversify probable contingencies' impacts (Hardy, 2017) [50].

**62. Implement customers' recommendations and feedback.** As a matter of priority, carefully consider each of the recommendations listed in Appendix 5 (pages 45 and 46). Take action on at least a few of these items in the short term to demonstrate to the customers that the company is truly listening to its stakeholders and wants to improve its service-quality and customer-relations.

## CHAPTER 5: MANAGEMENT RESPONSE

Following a meeting with the Managing Director and all managers of M.U.L. on November 9<sup>th</sup>, 2017, to present and to discuss the findings and the recommendations of the performance-audit, a deadline of December 29<sup>th</sup>, 2017, was given for written comments to be sent to the Auditor General. However, despite subsequent extensions (a) to January 26<sup>th</sup>, 2018, (b) to January 31<sup>st</sup>, 2018, and (c) to February 13<sup>th</sup>, 2018, no written responses or comments were received by any of these dates. Finally, months after the initial deadline, the following comments were received from MUL's Managing Director:

The following are comments by the MUL management team on the sections of the above captioned report. Each comment is sub-headed by the particular section of the report that the comment refers to.

| NO. | SECTION           | HEADING                     | PAGE |
|-----|-------------------|-----------------------------|------|
| 1   | Executive Summary | Why We Performed This Audit | viii |

*This report fails to address the issue of shareholder responsibility to ensure adequate funding is in place. MUL's external funding is controlled by GOM. Given MUL's. Financial position it is not possible for it to replace assets and thus it depends solely on GOM to provide funding.*

**Auditor's clarification:** The report clearly acknowledges the central role of the GOM both in the economy and in MUL. Ultimately, therefore, this report will be addressed to the Legislative Assembly, the highest level of GOM, for promptest action in support of MUL's large and increasingly urgent capital-needs and in line with GOM's national *Sustainable Development Plan*. Thus, the report strongly supports MUL's own calls for better funding.

|   |                   |                        |    |
|---|-------------------|------------------------|----|
| 2 | Executive Summary | 5. Survey of Customers | ix |
|---|-------------------|------------------------|----|

*The survey of customers was carried out at a particularly bad time for the power supply. A different result may have been obtained if the survey were to be carried out now, or for that matter immediately after the hurricanes in 2017.*

*Is the 5% interviewed a truly random sample and therefore a true representative of the users of electricity?*

*Customers were approached during the time that they were spending money. Would a different result be obtained if questionnaires were completed in a different environment? What was the format of the questions? Were they objective?*

**Auditor's clarifications:**

**[a] Surveys:** This survey is one of the largest undertaken for any organisation in Montserrat. National polls in other countries are proportionately very much smaller: e.g. Gallup Polls in the U.S.A. and Harris surveys in Canada sample roughly 1,000 persons in populations of 320 million and 38 million, respectively. This is the equivalent of fewer than 1 in 100,000 people and fewer than 1 in 10,000 people, respectively, versus our coverage of more than 1 in 20. In short, it is a large, useful, and reliable survey by any standards.

**[b] Samples:** our sample of more than 5% of the island's entire population covered about 15% of MUL's customer-households. It was a stratified random sample customised to the circumstances of Montserrat and tailored to the customer-profile of MUL: e.g., (1) MUL currently forces customers to pay by cash/cheque (either in person or via bank-accounts); (2) MUL has only one cashier-station on the island; (3) MUL's website is limited, and its information is sparse and mostly long out of date, and (4) the technology-platform provides for online accounts but MUL does not offer them to customers. Confirming the validity of the methodology, the sample-characteristics proved to be highly representative of Montserrat's population generally and of MUL's clientele particularly: e.g., (i) by gender, (ii) by age-ranges, (iii) by domestic versus commercial, (iv) by address/location, and (v) by nationality. Our study employed a variety of methods to gather both (i) facts and objective quantitative data and (ii) qualitative data (e.g., customers' attitudes to MUL, consumers' perceptions of prices and value for money, and clients' service-experiences). Customers surveyed were not only those making payments; our survey included persons who were (a) making inquiries, (b) making complaints, (c) requesting services, (d) opening/closing accounts, (e) requesting/checking statements/histories, et cetera. Thus, we observed many client-employee interactions and the dynamics of diverse facets of customer-service.

**[c] Period:** Much more than 2016/2017, the study covers 10 years of MUL's history and gathered client-data over a period of time. One of the report's strong recommendations is that MUL itself must do regular customer-surveys (at least yearly) in order to know what its customers think and feel at each point in time, and also to track trends in client-satisfaction over time. In this instance, the Office of the Auditor-General has done MUL a great service by conducting a large-scale survey at no cost to MUL. This creates independent benchmarks against which future trends, shortfalls, and progress can be measured.

**3 Executive Summary 9. Many persons prefer online/card-based payments. x**

*Any idea of the mix of the 250 customers surveyed in the categories of domestic and others? How many of the persons surveyed actually have an RBC account that would enable them to carry out these services? How many will be willing to bear the (4%) cost of*

*the service provided? Given MUL's financial position would it be wise to incur additional cost if the cost outweigh the benefit. The Conclusion is premature if a proper analysis is not conducted.*

**Auditor's clarifications:** Both Bank of Montserrat and RBC offer online banking and bill-payments at no charge to the customer. It is normal practice for companies to absorb their card-processing fees. In any case, these fees are small compared with the current situation's total direct and indirect costs of manual procedures and the multiple steps involved in cash-handling and in-person payments. Appendix 7 gives more education on the costs and benefits of electronic payments versus cash-payments and manual modes.

#### 4      **Executive Summary**      11. Paper remains dominant      x

*What evidence is there to support this? (i.e. paper dominance at MUL makes the local economy uncompetitive with neighbouring islands?) MUL's billing system is done via the iums software and an accounting software package is used in the Finance and Accounting Department, so how is paper dominant???*

#### **Auditor's clarifications:**

**[a] Evidence:** The most obvious evidence is that e-commerce and card-payments are normal and widespread in other Caribbean islands and in countries around the world; persons visiting Montserrat notice very quickly how few vendors, stores, restaurants, and supermarkets, have even one card-machine even for in-person payments; likewise, even the major payment-venues/revenue-agencies still have none (e.g., MUL, Customs Dept., The Treasury, Inland Revenue Dept., the airport, the sea-port). This poses major costs and inconveniences (e.g., travel and very high ATM fees for foreign cards used locally for getting cash-advances; long queues at banks to get local cash; time and cost of currency-conversions; limited cash on person versus large availability of funds through debit-cards and credit-cards; carrying, counting and storing notes and coins). For many visitors (including day-trip visitors, yachts, and cruise-ship passengers with limited time), this means that many potential transactions and purchases simply do not happen at all. Lack of such basic infrastructure (including online payments and reservations, online accounts, and card-payments even for customers paying in person) also discourages their return to Montserrat. It also annoys/deters potential investors, businesses, and home-buyers. The combined risks, costs (direct, indirect, and economic), and negative externalities are huge.

**[b] Paper versus Electronics:** (i) Having accounting software and computers internally is the first step; but considerable paper and printing are routinely found even in the accounting department, the billing department, administrative functions, and the customer-service department. (ii) Replacing paper and manual transactions throughout every department and in every aspect of the operations is the next step; currently, most/many reports, records, bills, statements, receipts, and other documents are printed and/or mailed physically. (iii) Towards improved client-service and increased efficiency overall, MUL needs to inform and to empower all of its customers so that they will adopt emailing

of bills, online banking, and online payments. Many of MUL's customers still do not even know that these options are already available and/or how easy they are to use right away. Make electronic options the defaults; do not wait for clients to ask. Clients will more readily adopt electronic options when you make them easy to use.

## 5      **Executive Summary**      12. Status Quo is very costly      x

*The adoption of card payments will not obviate the need for a cash handling as only a small sample prefers this method of payment. Plus the composition of the customer base is domestic. Plus there is a funding constraint. The big contributors to the fossil fuel cost in operations is the escalation in the price formula. While the formula is standard with industry and is commodity priced, the escalator or mark-up is exorbitant [CHECK OLD SUPPLY AGREEMENTS] Plus there is Government 5 percent service charge.*

### **Auditor's clarifications:**

**[a]** Offering card-payments is a basic expectation of all modern businesses; it is no longer optional. Moreover, this study confirmed that a very significant percentage of MUL's clients would welcome email billing, online accounts, and/or card-payments (either in person or online). Two decades into the 21<sup>st</sup> Century, MUL needs to start with at least one card-machine at the cashiers for the in-person payments.

**[b]** The next stage is to inform all customers about the availability of email-billing, online banking and online bill-payments.

**[c]** The third stage is to optimise MUL's website to facilitate online accounts and direct online payments. This is all the more essential given the large number of expatriates on the island and the large number of Montserratians (over 50% of the pre-1996 population) overseas. Over time, each customer switching from cash-payments and in-person payments (the most expensive option) to electronic channels will (1) gradually reduce MUL's total direct and indirect costs, while (2) improving MUL's image, (3) enhancing MUL's customer-service, and (4) reducing late and missed payments by customers who are travelling and/or residing overseas for any part of the year. As history shows us, Montserratians, like persons around the world, progressively adopt new and better technologies (e.g., personal radios, colour-television, telephones, cars, computers, Internet, ATMs, online banking, online shopping, social media, debit-cards, credit-cards, and smart phones) when they understand their benefits and are shown how to use them.

## 6      **Executive Summary**      13. Retarded Economic Growth      x

*What evidence is there for this comment?*

*How could inefficiencies in payment systems affect social and economic activity?*

*Customers pay once a month; how does this affect their businesses?*

### **Auditor's clarifications:**

**[a]** These issues are addressed (i) above, (ii) in Appendix 7, (iii) in the references and bibliographies, and (iv) elsewhere in the report. Cash-payments and in-person payments are the most expensive method. They require considerable amounts of time, effort, energy, materials, fuel, and transportation.

**[b]** Furthermore, our recent large-scale performance-audit of absenteeism, attendance, and performance in the public sector (about 1,000 persons or 50% of the workforce and 20% of the island's population) confirmed that in-person bill-payments, banking, and similar transactions contribute to many person-hours per year taken from work-time. Altogether, the lost productivity, the multiple avoidable direct and indirect costs, and the various adverse impacts on human health, fuel-imports, carbon-emissions, infrastructure, and the natural environment have a major retarding impact on the development of a sustainable economy and healthy society. Time lost is never recovered.

## **7      Executive Summary      14. Implement Solar Energy      xi**

*Implementation of Solar is being actively pursued by GOM through the MCWL as part of its alternative energy policy. (i.e. 1MW Solar project currently in the procurement phase) Additionally, how can MUL offer installation, maintenance and financing of photovoltaic systems to customers? It has neither the capacity nor the funding.*

**Auditor's clarifications:** There are many sources of funding, grants, and smart partnerships (especially for climate-change mitigation strategies, renewable energy, smart infrastructure, and environmentally friendly development). For instance, TESLA offered to transform another small community free of cost. By being visionary and proactive, MUL and Montserrat can become global case-studies and showcase successful progression from 100% imported fossil-fuels towards 100% renewables. Closer examination both of MUL's resources and of GOM's resources reveals that increased efficiency and effectiveness would free some of the existing resources for higher-value purposes, including energy-saving and cost-reducing paradigms such as (a) solar power, (b) solar/electric vehicles, and (c) electronic information, communication, and payments. These technologies will allow MUL and GOM to do more at *less* cost. Overall, MUL, GOM, and Montserrat already have access to many resources and can achieve better performance-outcomes with wiser choices and better uses of those resources.

## **8      Executive Summary      15. Adequately Fund MUL's Capital Budget      xi**

*The Company's approach to operations and capital programmes has been determined by cash flow and funding constraints and has evolved rather than the result of strategic planning. Management has well documented what needs to be done, the missing link is funding.*

**Auditor's clarifications:** The Office of the Auditor-General is an independent advocate for increased efficiency, effectiveness and value for money throughout the public sector, which includes all statutory bodies and all State-owned enterprises such as MUL. This report makes a very strong plea, on MUL's behalf, (a) for strategic planning, (b) for optimal tariff-allocation, and (c) for adequate funding and capital-budgeting.

**9      Executive Summary Key Recommendations: 16. Enable Card Payments      xi**

*What evidence is there that enabling card payments at MUL in particular will facilitate trade, travel and tourism while raising the modern profile of the country? And reduce Government's current cost for that matter? Is this a comment about MUL or the country in general?*

**Auditor's clarifications:**

**[a]** These issues are addressed (i) above, (ii) in Appendix 7, and (iii) elsewhere in the report. MUL is 100% owned by GOM and is an important part of the wider public sector. What applies to GOM applies to MUL and vice versa.

**[b]** Card-payments and electronic channels for information, communication, customer-service, & payments are standard requirements of modern businesses and 21<sup>st</sup> Century economies.

**10      Executive Summary      17. Make e-Government the Default      xi**

*How are the contents of this paragraph of relevance to MUL? Even with online payments, MUL will still have to maintain manual systems for the majority of customers.*

**Auditor's clarifications:**

**[a]** These issues are addressed (i) above, (ii) in Appendix 7, and (iii) elsewhere in the report. MUL is 100% owned by GOM and is an important part of the wider public sector. What applies to GOM applies to MUL and vice versa.

**[b]** MUL, like GOM generally, must start somewhere: e.g., offering customers the option of card-payments (debit/credit) at the cashier-stations for in-person payments. Every customer that switches to electronic billing, statements, accounts, communication, and/or payments will progressively reduce MUL's total direct and indirect costs, while improving client-satisfaction. At every level, the time, the effort, and the costs that are saved can be better reinvested elsewhere in the economy and in the society (e.g., family, church, etc.).

**11      Executive Summary and Main Body of Report Opinion      xii**

*This opinion would be the result of the observations and impressions of the author. It seems to conclude that several problems could be solved by improved information and payment systems and the introduction of alternative sources of generation. The report is*

*flawed in many ways, the principal one being that it starts in 2016. The introduction to this report should have set the scene and showed:*

*a) The Historical background which would show among other things that with a current customer base and electricity peak demand that are at the levels they were in 1974, the unit costs today would be that much higher. The utility therefore operates under severe financial constraints.*

*b) The tariff formulation mechanisms coming forward since then, whereby the domestic consumers are subsidised by commercial/ industrials. The embedded subsidy is still there but the subsidy providers (Radio Antilles, The Medical School, Air Studios, The Hotels, W&W Electronics, The Rice Mill etc.) are not there.*

*c) Constraints on funding for capital and recurrent expenditure since the volcanic crisis. At no point does he quantify his capital cost (the author).*

*d) The Opinion does not recognize the sterling efforts of management, the technical staff in the electricity generation and T&D departments to maintain the supply of electricity under the harshest circumstances.*

*With water being recognized as a basic human need and therefore essential to life, the water utility services infrastructure development has historically always had relatively easier access to funding in the form of grants.*

*The Author appears to be coming from a perspective of ideal conditions and ignores the realities of Montserratians and Montserrat. For example, the comparison to the Cayman Islands in section 27 is irrelevant, misguided and misinformed.*

*The Author has not therefore made a fair and objective assessment of MUL's current situation and the context in which it operates. He misrepresents certain aspects of the operation for example the statement "waiting on things to break or malfunction" in paragraph 41 seems to suggest that there is no preventative maintenance planning which is totally untrue.*

*Lastly, the institutional strengthening needs of the Utility outlined in some areas of the report has already been recognized. A loan agreement was signed between the GOM and the CDB and part of the proceeds will go towards procuring consultancy services to develop an Integrated Resource Plan, A Cost of Service Survey and Tariff Study for Montserrat's Power and Water Sectors and this is in the procurement phase and is expected to be completed in 2018.*

*A 5-year business plan for MUL that would be completed later in the year will seek to address some of the areas for improvement required. Unless the current business climate, it is likely that MUL will continue to depend on funding support from GOM to make the necessary improvements.*



**Auditor's clarifications:**

**[a] Sources:** Rather than being the product of only one author, this and all other performance-audit reports emanating from the Office of the Auditor General represent the knowledge, skills, experiences, inputs, peer-reviews, and professional opinions of a team. Facts, information, and perspectives were gathered from multiple persons and diverse sources, across more than a decade of MUL's history, including hundreds of customer-households, MUL's past and present managers, and both past staff and present employees of MUL. They all clearly contrast the excellent reputation and utility-services that MUL had historically, versus those experienced by customers since October, 2016.

**[b] Dates/Period:** This study covered the entire history of MUL from the inception of the Montserrat Utilities Limited Act in the year 2008. The reference to the year 2016 is made solely regarding the period in which electricity-service began to be frequently interrupted, causing widespread dissatisfaction among customers (for the past 18 months to present).

**[c] Corporate clients:** Since more than 20 years have passed since the volcanic crisis of year 1995, the protracted failure to attract (the return of) past major clients and/or new ones is a major issue highlighted in this report, as well as in previous performance-audits, within the broader context of the need to develop the economy through high-value-adding 21<sup>st</sup>-century approaches to information, communication, payments, service, and marketing. Each report emphasises the urgent need to implement these approaches so as to boost efficiency, effectiveness and value for money. Modern paradigms of strategic planning, of strategic marketing and of Client Relationship Management, along with smart partnerships, will go far in creating the funding and the conditions for attracting more and better tourists, home-buyers, investors, and businesses to the island for the long term.

**[d] Praise/criticism:** The report very early commends MUL for meeting or exceeding expectations regarding water-quality and sewage services. In other areas, there are performance-gaps, and various aspects of electricity-service and of client-services are well below customers' needs and expectations. Each point of the findings is offered as constructive criticism and is followed by practicable recommendations and solutions to bring about improvements that will benefit MUL, the GOM, and the people of Montserrat.

**[e] Case-Studies:** The case of the Cayman Islands is only one of many examples that can be found in the report, in the references, in the bibliographies, and in many other sources. It is particularly relevant and useful for several reasons: e.g., like Montserrat, the Cayman Islands (1) is a U.K. Overseas Territory, (2) is located in the Caribbean, (3) has a small-island tropical geography, (4) has a small community and small customer-base, (5) has a monopoly utilities-provider, (6) has a significant percentage of residents and customers from other countries, (7) has an open economy with high imports, strong ties to the U.K., and dependence on external/foreign businesses, funding, etc., and (7) has survived major disasters within the past 20 years. Therefore, it illustrates what is possible with excellent management, excellent client-service, modern marketing, smart partnerships, and flexible financing approaches. Every one of MUL's performance-gaps, deficiencies, causes of customers' dissatisfaction, issues with pricing and financing, et cetera, has already been experienced, documented, studied and solved in other countries. In short, GOM and MUL

can learn much from the successes and progress of other countries within the region as well as other small-island States around the world, saving time, money and effort in the processes of organisational transformation, operational improvements, and economic (re-)development.

*Responses in italics*

Kendall Lee  
Managing Director (Ag.)

February 28, 2018  
Date

## CHAPTER 6: OVERALL CONCLUSION

**(a) Aging equipment and infrastructure.** The majority of MUL's assets (e. g., vehicles, generation-equipment, and water-distribution pipes) are old, and in chronic need of repair, replacement, and/or upgrades. **Most of the infrastructure is not insured; this is a serious direct risk to GOM and a large contingent liability both to MUL and to GOM.** A strategic approach to planning, budgeting, self-insurance, and procurement is essential to efficiency, effectiveness, safety, and value for money. As the power-supply is repeatedly interrupted, the status quo is incompatible with the GOM's Policy Agenda, including economic growth, private-sector development, major investments, and increased population (Citizens Guide, 2016, p. 1).

**(b) Outdated systems.** The provision and the availability of infrastructure for telecommunications and for information-technology, including the capacity for electronic payments, online transactions, and e-commerce, are widespread, and these services are being widely used and increasingly demanded throughout the economy and the society of Montserrat. Many positive changes have taken place during the past 20-plus post-crisis years, propelling the country into the 21<sup>st</sup> century technologically. **It is overdue for MUL to harness these fully.**

**(c) Unused and under-used technologies.** Too many instances remain where available low-cost approaches are not employed, and/or existing technologies, modalities, and payment-methods are readily feasible, but they are not being utilised fully or at all. Whilst this pattern of non-deployment of technologies and of sub-optimal utilisation has a considerable range across the public sector (e. g., salaries and wages are paid electronically directly to bank-accounts, but most vendors are still being paid by manual processes and paper-cheques), there are obvious opportunities for a transformation of MUL, as well as the entire public sector, into a much more efficient, fully effective, modern vehicle for accelerating the flow of funds throughout the economy, starting with its own customers, suppliers, contractors, and creditors.

**(d) Great opportunities.** In short, renewable energies are cheaper than ever and more and more readily available to replace imported fossil-fuels, along with their risks and costs to the environment, to human health, to the economy, to energy-security, to the cost of living, and to the cost of doing business. In Montserrat, the financial sector is electronically capable, the society is technologically equipped, and the economic actors are calling daily for implementation and for expeditious facilitation, starting with online systems, electronic payments, and more convenient access to information and accounts. **The large numbers (i) of expatriates on the island and (ii) of Montserradians overseas make this very important and urgent** for sustainable development.

**(e)** It is now the imperative onus of MUL, supported by the GOM's general reforms, to close this increasingly urgent and exceedingly expensive performance-gap throughout the public sector and the economy, and, thus, to **come fully into the 21<sup>st</sup> century in all of its forms, methods, and systems of information, communication, service-delivery, and payment-methods.** Encouragingly for all stakeholders, even small incremental and individual improvements can aggregate to significant economic multiplier-effects. This is a distinctive advantage of small, open, and developing island-States. **MUL stands to benefit disproportionately from each improvement as it is one of the largest businesses on the island and has the greatest diversity of clients.**

# APPENDIX 1: OFFICE OF THE AUDITOR GENERAL

## Functions

By force of *The Montserrat Constitution Order 2010*, the O.A.G. is established and upheld in its independence and in its functions within the public sector of Montserrat. The relevant section states as follows below:

### “Functions of Auditor-General

103.—(1) **The Auditor-General shall audit and report on the public accounts of Montserrat and of all public offices, including the courts, the central and local government administrations, universities and higher education institutions, and any public corporations or other bodies or organisations established by an Act of the Legislature, and may conduct financial and value for money audits in respect of any project involving public funds.**

(2) The Auditor-General shall submit to the Legislative Assembly **annually a report** of the accounts audited by him or her under subsection (1) for the immediately preceding financial year.

(3) For the purposes of subsection (1) **the Auditor-General and any person authorised by him or her shall have a right of access at all reasonable times to all such documents as appear to him or her to be necessary for the purposes of the audit**, and shall be entitled to require from any person holding or accountable for any such documents such information and explanation as he or she thinks necessary for those purposes.

(4) In the exercise of his or her functions, the Auditor-General shall **not be subject to the direction or control of any other person or authority.**” [Bold and underlined emphases added throughout]

The independence of both (a) the functioning of the Auditor-General and (b) the budgetary allocations from the Government’s national Consolidated Fund to finance the Office of the Auditor General are clearly stated and emphatically declared as follows below:

### “National Audit Office

104.—(1) The Legislature shall by law make provision for the establishment of an independent National Audit Office headed by the Auditor-General.

(2) **The budget** for the National Audit Office shall be charged on and paid out of the Consolidated Fund, and **must at all times be adequate to enable the full performance of the** functions conferred on the **Auditor-General** by this Constitution or any other law.

(3) The accounts of the National Audit Office shall be audited and reported on by an auditor appointed by the Legislative Assembly.” [Bold and underlined emphases added throughout]

In line with international standards for public-sector auditors and global best practices for Supreme Audit Authorities, the O.A.G. of Montserrat espouses the following values and priorities:

## Our Values

**Respect.** We seek to build productive professional associations and cordial personal working relationships with colleagues internally as well as with other public servants externally.

**Honesty.** We tell the truth even when it is unpleasant or embarrassing. Accurate self-assessment is vital for every person and for every unit of Government to acknowledge its strengths and its weaknesses, and to begin to address performance-gaps and shortfalls from relevant policies, from applicable standards, and from currently binding laws and regulations.

**Transparency.** Our work is in the service of the Government and the people of Montserrat. Therefore, all of our final reports on engagements undertaken are made available to all stakeholders, to the public and to any other interested parties via publication on our website.

**Confidentiality.** In the course of our duties, we protect the identity of all persons who reveal secret information or private details. Our reports disclose general conclusions and focus on practicable solutions rather than highlighting any person or department directly.

**Accountability.** By definition, the work of the O.A.G. is to hold accountable all public-sector Ministries, Departments, agencies, public-private partnerships, and State-owned enterprises. In turn, we are accountable (a) to colleagues through quality-control procedures and through peer-review, (b) to local, regional and multinational professional accounting and auditing bodies, and (c) to global standards-setting bodies. Finally, the O.A.G. itself is subject to annual audits by an independent external audit-firm of the highest repute.

**Objectivity.** Auditors must remain impartial, devoid of partisan bias, without membership of political parties, and otherwise focused on the truth and the facts, rather than personal opinions, emotions, or self-interest. All of our analyses, conclusions and recommendations are based on facts and verifiable and auditable evidence, supported by retained audit-papers and work-in-progress files throughout each and every audit-engagement. Information is gathered solely for the purposes of the official audit and never to be used for personal advantage of either the auditors themselves or of any other person, party, entity, or enterprise.

**Independence.** Vitally important to the respectability of the O.A.G. is the independence of the Auditor-General and of his/her staff both in appearance and in fact, both in public discourse

and in social intercourse. Auditors must avoid any potentially compromising personal relationships or business activities with any public-sector auditee. Where he/she has (i) any material private indirect interest and/or (ii) any direct financial or other interest in an auditee and/or (iii) in or with any of its employees, suppliers, investors, creditors, or other related parties, an auditor must either refrain from any part of an audit of such entity and/or disclose the nature and the extent of such actually or potentially compromising interest whatsoever it be.

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## APPENDIX 4: TERMINOLOGY

The following discussion presents some of the most important terms pertaining to Performance-Audits generally and clarifies [a] the conceptual framework, [b] the mathematical definition, and [c] the practical illustrations and applied examples for each word or phrase. As many terms are used loosely in common speech and/or they are often used quite indistinctly, incorrectly, interchangeably with otherwise separable terms, or altogether inappropriately even in more formal contexts, it is vital for clarity and for shared understanding to explain exactly how and why each term is being used in this document.

**Efficiency.** This concept is easily defined as the prudent management of costs in producing a desired output, deliverable, or outcome. In practical terms, efficiency is measured as the ratio of inputs per given or desired unit of output. The performance-goal is the minimisation of inputs and/or input-costs per unit of output, subject to the desired quality of that output, and to any applicable standards, regulations, contractual obligations, client-service objectives, or legal requirements.

**Productivity.** This is the mirror-image of efficiency: This concept is easily defined as the prudent management of activities, personnel, and resources in producing an *actual* output, deliverable, or outcome. In practical terms, efficiency is measured as the ratio of actual units of output per given unit of each input. The performance-goal is the maximisation of output per unit of each input and/or of each input-cost, subject to the desired quality of that output, and to any applicable standards, regulations, contractual obligations, client-service objectives, or legal requirements.

**Effectiveness.** This concept is easily defined as the prudent management of activities, personnel, and resources in, and towards, producing a *desired* (e.g., planned or budgeted) output, deliverable, or outcome. In practical terms, effectiveness is measured as the ratio of actual units/costs of all outputs to the desired units/costs of output. The short-term performance-goal is the minimisation of the gap between desired output(s) and actual output(s), subject to the desired quality of that output, and to any applicable standards, regulations, contractual obligations, client-service objectives, or legal requirements.

By contrast, the medium-term and/or the long-term performance-goal(s) is (are) the sustainable maximisation of actual output(s) meeting (or, best of all, exceeding) the quality and the amounts of desired output(s), subject to the desired quality of that output, and to any applicable standards, regulations, contractual obligations, client-service objectives, or legal requirements. Essentially, akin to the distinction of operational management from strategic leadership, *efficiency* is about doing things well, whilst *effectiveness* is about doing the right things. The danger frequently confronting public-sector administration (and, moreso, affecting civil-service reform) is that most employees are preoccupied with efficiency within narrow daily parameters, often degrading to *de minimis* compliance with prevailing rules, norms, conventions, and customs.

Ultimately, national leaders must give (i) visionary impetus, (ii) policy-empowerment, and (iii) sustained accountability, both (a) for public servants, on the one side, and (b) for private enterprises, for non-governmental organisations, for households, and for individual citizens, on the other side, to ensure that all activities and resources are being directed towards the achievement of the national strategy for Montserrat's redevelopment. By having (i) clearly enunciated policies, (ii) continually reviewed and relevant laws and regulations, (iii) regular communication with, and engagement of all stakeholders, as well as (iv) precisely defined benchmarks and metrics for efficiency, for effectiveness, and for performance, the Government of Montserrat --- and, by extension, The Crown, its creditors and its development-finance partners, -- - can encourage, measure, reward, and celebrate true progress in all facets of its operations. Certainly, the visionary impetus is readily provided by such governmental proclamations as the **Montserrat Sustainable Development Plan 2008 to 2020: Journey to Sustainable Prosperity** which espouses a national vision of "**A Healthy and Wholesome Montserrat**" [S.D.P., 2010, p. i].

**Value for money.** This economic concept is easily defined as the prudent management of resources and costs in producing a *desired surplus quantum and/or value of benefits* derived from actual output(s), deliverable(s), or outcome(s). In practical terms, value for money is measured as the consumer's utility or economic surplus: i. e., (1) the actual (and/or user-perceived) value of all benefits of each unit of output, minus (2) the actual costs per unit of each input required to produce that unit of output. The performance-goal is the maximisation of the total value of incremental benefits (minus marginal costs) derived from all units of output (e. g., public services or public goods), subject to the desired quality of that output, and to any applicable standards, regulations, contractual obligations, client-service objectives, or legal requirements.

As a simple example, one computer-system might cost \$10,000 whilst another computer-system might cost only \$5,000; here, the second option is clearly the cheaper (the more efficient) one, but is it the most effective choice? Does it meet all the desired specifications? Even if it is found to be effective, an option must then be evaluated for its value for money. It is entirely possible for an efficient option to be ineffective, and for an effective option to be inefficient, but value for money circumscribes both scenarios as a further check on the rightness of a decision or policy, and, in particular, in the assessment of the value and the benefits of actual behaviours and choices versus their underlying costs, efficiency, effectiveness, and productivity.

To illustrate these four concepts further, value for money would look not merely at the costs alone, but at the ratio and the quantum of benefits derived from outcomes/ outputs versus costs incurred in their achievement. Therefore, a \$10,000 computer-system that produces \$50,000 of benefits per year yields a value for money ratio of 5:1 and an absolute value of \$40,000 per year. By contrast, a \$5,000 computer-system that produces \$10,000 of benefits per year yields a value for money ratio of 2:1 and an absolute value of only \$5,000 per year. Where value-for-money ratios are similar or identical, **preference would usually be given to the option that produces the highest absolute value for money.** E.g., Consider an Option A costing \$500,000 and yielding \$2,500,000 of annual benefits (i.e., value-for-money ratio of 5:1 and absolute value for money of \$2,000,000 p.a.), and an Option B costing \$50,000 and yielding \$300,000 of annual benefits (i.e., value-for-money ratio of 6:1 and absolute value for money of \$250,000 p.a.).

Though it is inferior in terms of value-for-money ratios (i.e., 5:1 versus 6:1), Option A is clearly superior to Option B in terms of its value for money to the country, in absolute terms. In short, *ceteris paribus*, the public is generally much better served when it derives a better value for money overall, even at a higher relative annual cost or initial investment, than when a cheaper and/or less productive option is chosen.

**Performance.** This concept defines observable behaviours in respect of a specified function or activity. In practical terms, performance is measured as the comparison of *ex post* actual outcomes with *a priori* desired or pre-agreed outcomes. This lends itself very well to objective definition, measurement, monitoring, reporting, feedback, and recommendations for improvement, wherever gaps are identified between (a) desired behaviours and outcomes and (b) actual behaviours and outcomes. For a simple example, an employee who claims no sickness-leave in a given year would be said to have perfect performance vis-à-vis an allowance of 25 work-days per year, whilst an employee who claims 33 days for sickness would be clearly seriously under-performing with respect to that same standard.

**Performance-audits.** Audits are objective, external, and independent reviews of activities, processes, organisations, financial statements, and/or other objects of interest, having explicit regard to such parameters as (i) applicable laws, (ii) external regulations, (iii) internal policies, (iv) internal rules, (v) international treaties, (vi) bilateral or multilateral agreements, (vii) industrial benchmarks, (viii) contracts, (ix) codes of conduct, (xi) ethics, (xii) morals, and/or (xiii) professional standards. Accordingly, performance-audits go well beyond (1) *financial audits* (which assess financial statements and reports against International Financial Reporting Standards) and (2) *internal audits* (which pertain to assessments of an organisation by insiders with a single-entity perspective), for instance, to examine the actual, observable, and measurable behaviours, outputs, efficiency, effectiveness, and value for money of an entity, a programme, an agency, a statutory corporation, or an entire public sector, as the case might be. In this regard, performance-auditing is inherently more far-reaching, more strategic, and more consultative than other types of audit. When it is well executed by the auditor(s), and when, thereafter, its findings are wisely attended and its recommendations expeditiously implemented, a performance-audit in the public sector has the potential to offer the greatest value for money to the Government and, ultimately, to the people of Montserrat. In short, it pays for itself many times over.



# APPENDIX 5: AUDIT FIELDWORK

## Questionnaire for Interviewees

### Internal Interviewees

- (1) The Managing Director
- (2) The Financial Controller
- (3) The Customer Service Supervisor
- (4) The Manager of Electricity
- (5) The Water and Wastewater Technologist
- (6) The Human Resources Manager
- (7) The Water Distribution Network Supervisor

### Survey of Customers

During the period of July 10<sup>th</sup> to 28<sup>th</sup>, 2017, we conducted an extensive in-person survey of individual clients at MUL's premises. The daily sample-period (10 a.m. to 1 p.m.) included the core hours of the cashier-services (8 a.m. to 3 p.m.). Whilst this was not a strict random sample, (a) the fact that most customers pay at MUL's premises in St. John, (b) the very strong pattern of the overall results, and (c) the relatively large size of the sample (253 persons or more than 5% of the population), individually and collectively provide a reasonably sound basis for extrapolating from the surveyed clients to the general population. Next is a summary of the collated survey-data:

|     | Question/Topic   | Very poor                          | Poor | Average         | Good/Very good               | Excellent |
|-----|--|------------------------------------|------|-----------------|------------------------------|-----------|
| [1] | Overall perception of MUL<br>(rounded to nearest 1%)       | 11%                                | 19%  | 41%             | 27%                          | 3%        |
|     |  | <b>Average to very poor = 70%;</b> |      |                 | <b>Above average = 30%.</b>  |           |
|     |  | Very low                           | Low  | Fair/Reasonable | High                         | Very high |
| [2] | Perception of water-price<br>(rounded to nearest 1%)       | 1%                                 | 5%   | 73%             | 17%                          | 4%        |
|     |  | <b>Fair to very low = 79%;</b>     |      |                 | <b>High/Very high = 21%.</b> |           |
|     |  | Very low                           | Low  | Fair/Reasonable | High                         | Very high |
| [3] | Perception of electricity-price<br>(rounded to nearest 1%) | 0%                                 | 0%   | 25%             | 49%                          | 26%       |
|     |  | <b>Fair to very low = 25%;</b>     |      |                 | <b>High/Very high = 75%.</b> |           |

|     |   |      |         |                     |      |
|-----|---|------|---------|---------------------|------|
| [4] | Problems with water-supply<br>(during the past 12 months)     | NO   | 95%     | YES                 | 5%   |
| [5] | [a] Problems with power-supply<br>(during the past 12 months) | NO   | 0%      | YES                 | 100% |
|     | [b] Damage to appliances/electronics?                         | NO   | 61%     | YES                 | 39%  |
|     |   | Cash | Cheques | Credit-Cards/Online |      |
| [6] | Preferred payment-method                                      | 53%  | 6%      | 41%                 |      |

## Customers' feedback and recommendations

Listed in order from most frequently mentioned to least frequently mentioned:

- (1) Reliable power; reduce power-outages.
- (2) Give clients notices of outages.
- (3) Provide extended business-hours (e.g., after 4 p.m. for working people; Saturday).
- (4) More locations for making payments and/or queries (e.g., Brades and Salem).
- (5) Reduce overall price of fuel-charge/power.
- (6) Implement solar/wind power; offer interconnection for customers who invest in these.
- (7) Maintain the equipment; fix the generators.
- (8) Improve investments; complete geothermal (re years of delays and tens of millions spent).
- (9) Improve public relations and communicate with clients (e.g., explaining power-outages).
- (10) Reduce the queues; especially at month-end, lines are too long.
- (11) Have adequate number of cashiers during busy periods (e.g., lunchtimes; month-end).
- (12) Improve customer-service training; do customer-surveys.
- (13) Update the website regularly (some information is years old); make it fully functional.
- (14) Compensate for damage to clients' appliances and electronics. (N.B. This one was greatly understated only because many persons had been told not even to apply to MUL for help; however, based on the survey-results, it is clear that all those who experienced damage would have welcomed a friendlier client-relations approach to rebates/discounts etc.).
- (15) Directly contact and notify clients before disconnections (especially first-time cases) to make sure that they are given one more chance. This is especially important in case the person is travelling, is mostly resident off the island, or missed the physical notice(s).

- (16) Encourage and facilitate electric cars; offer lower power-prices for recharging during non-peak hours.
- (17) Provide more street-lights; maintain those that are already installed.
- (18) Implement a hotline for customers. Too often, there is no answer after 4 p.m.
- (19) Schedule repairs at times other than when persons are preparing for work/school.
- (20) Consider damming a valley and implementing hydroelectric power to reduce costs and to increase renewable power-supply.
- (21) Offer discounts for early payments.
- (22) Allow and encourage overpayments/prepayments so that clients can manage variations in their income / cash-flow. Make allowances for cases of hardship or mitigating circumstances.
- (23) Distribute surge-protectors and/or share bulk-discounts to help to protect clients' appliances/electronics/equipment from the unreliable power-supply.
- (24) To alleviate the shortages in water-storage, offer clients tax-free purchases of water-tanks.
- (25) Make it easier for clients to import/purchase generators.
- (26) Send reminders re bills due. Make direct personal contacts to ensure that both the proximal end-users and the ultimately responsible owners/clients are fully aware and understand the situation regarding any arrears (e.g., expatriate owners; tenants versus landlords).
- (27) If not full compensation for clients' damaged appliances/electronics, offer at least a token of rebate for their inconvenience and losses. This will go a long way towards rebuilding goodwill for MUL.
- (28) Improve MUL's facilities; consider owning versus renting.
- (29) Timely reading of meters.
- (30) As in the U.K., offer clients a programme of instalments re arrears rather than resorting to ultimata and disconnections.

## APPENDIX 6: LEGAL EXTRACTS

45. The *Public Finance (Management and Accountability) Regulations 2009* gives clarity of procedures with respect to payments in the public sector, as well as to the related accounting and record-retention, all including electronic forms. Part XIII provides for overseas payments by draft as well as by electronic transferral as follows:

“67. (1) Payments of public moneys to persons outside Montserrat shall be made by direct payment to such persons by banker’s draft or otherwise **through the banking system**; and where direct payment is considered to be inappropriate, payment shall be made on the authority of the Accountant General through agents duly appointed for the purpose with the approval of the Financial Secretary.” (p. 32) [emphasis added]

### “Payment vouchers or electronic documentation

69. (1) All disbursements of public moneys shall be properly vouched on payment vouchers or electronic documentation approved by the Accountant General . . . .”

**“(5) All payments due shall be made as soon as possible to the persons entitled to receive them.”**

Part XVIII permits all public-sector records and accounting to be made by paper-documents as well as by electronic forms, storage, and retrieval as follows:

### “Accounting and book keeping in the Public Service

83. (1) The approved estimates form the basis of the accounts for the year to which they relate and the analysis and classification of the accounts of revenue and expenditure shall accord with those estimates.

(2) Every entry in the books of accounts shall be supported by a voucher and other approved documents containing the full details and particulars of the item or items to which it relates.

(3) A book, account or record that is required to be kept under the provisions of the Act or these Regulations may be kept or prepared—

(a) by making entries in a bound or loose-leaf book;

(b) **by recording or storing the data concerned on electronic or other media by means of a mechanical, electronic or other device;**  
or

**(c) in any other manner approved by the Accountant General.**

**(4) Notwithstanding sub-regulation (3) of this Regulation, where a book, account or record is to be kept or prepared by a mechanical, electronic or other device or to be stored on electronic or other media—**

(a) the data recorded or stored shall be capable, at any time, of being reproduced in a hard copy or any other form approved by the Accountant General; or

(b) a reproduction of the data shall be kept in a hard copy approved by the Accountant General, and the provisions of the Act and these regulations with respect to written records shall, with necessary changes, apply.” (p. 37) [emphasis added]

### **“Use of computer based accounting systems**

**84. (1)** Where the **data recorded or stored on electronic** or other material by a mechanical **or electronic device** forms part of a system of account under the control of an Accounting officer, the prior approval of the Accountant General shall be obtained and any changes to the system shall similarly be approved.

**(2)** An accounting officer shall take all reasonable precautions to guard against damage to, destruction of, or falsification of or in, and for discovery of falsification of or in, any book, account, record or part of a book, account or record required to be kept by the Act or these Regulations; and in particular shall ensure that all instructions issued by the Accountant General in this respect are implemented and enforced.

**(3)** An accounting officer shall, in particular, satisfy himself that where **the system involves the authorisation, approval, deletion or alteration of any transaction or data by electronic means, or any means other than in writing**, an audit trail is provided, which enables the person giving such authorisation or approval or deleting or altering a transaction to be identified beyond reasonable doubt and the nature and, if applicable, the amount of the authorisation, approval, deletion or alteration to be ascertained.

**(4)** An accounting officer shall also satisfy himself as to— **(a) the security of the means of storage and the method of processing of electronic media and its data; (b) the proper documentation of any software involved**, and shall implement and enforce any instructions issued by the Accountant General in this respect.

**(5) In particular access to data and data processing areas shall be controlled and the method of control documented.**

**(6) Where passwords are used as a security check for accessing data in a computer based accounting system for whatever purpose, including the authorisation or approval of transactions by electronic means or the alteration or deletion of any data, the passwords shall be kept secret by the person to whom they are allocated.**

**(7) Any public officer who communicates a password to another public officer and causes loss or damage to the Government shall be liable to disciplinary action.**

**(8) Proper technical support shall be readily available for both hardware and software; and effective backup and disaster recovery procedures shall be instituted to cater for a partial or complete breakdown or loss of the storage media or processing equipment.**

**(9) The objective of the requirements of sub-regulation (8) of this Regulation is to ensure that the administration of the Government, and in particular the collection of revenue, is not adversely affected.” (p. 38) [emphasis added]**

#### **“Treasury cash books**

- 85. The Accountant General and any public officer appointed by him, shall keep in his office a cash book, batch sheets or other records including electronic copies showing the allocation of receipts and payments, journals and ledgers together with such other books and registers as may be necessary for the proper maintenance and production of the accounts.” (p. 38) [emphasis added]**

# APPENDIX 7: METHODS OF PAYMENT

## Methods of Payment

**Cash.** After millennia of use, cash is rapidly diminishing in importance in the modern world.



(Anand & Kumar, 2016).

Several central banks have already eliminated production of some denominations of coins, for instance, (e.g., the 1-cent and 2-cent coins have been discontinued by the Eastern Caribbean Central Bank), owing to the fact that the cost of production exceeds the value of the denomination in circulation

**Cheques.** While offering several advantages over cash in the form of notes and coins, cheques



are also diminishing in their proportion of transactions worldwide. Traveller's cheques, in particular, are already obsolete in several jurisdictions, as credit-cards, debit-cards, and cash-cards proliferate worldwide.

**(a) Direct costs.** Local costs range from EC\$20 to EC\$30 per month for having a chequing account: this means a basic annual cost of EC\$240 to EC\$360 merely for having an account. Moreover, cheques incur incremental transactional costs with each use: the cost of cheques ranges from EC\$15 per book of 25 cheques to EC\$60 for a book of 150 cheques; stamp duty of EC\$0.05 applies to each payment. This yields a range of EC\$0.45 to EC\$0.65 per cheque-payment (BOM, 2014)<sup>1</sup>.

<sup>1</sup> <http://www.bankofmontserrat.ms/public-relations/>

(b) **Other Costs.** Effectively, small transaction-amounts and transaction-volumes are heavily penalised, and the low-income segments of the society are worse affected, whilst high-volume users (e.g., wealthy households and large corporations) have the lowest cost per unit. Studies continue to show that commercial banks are over-charging customers with ever higher and more numerous fees (McCoy, 2016). We found that the same obtains in Montserrat: e.g., RBC Montserrat charges E.C.\$300.00 per year for a savings-account, both RBC Montserrat and BOM charge fees (E.C.\$300.00 and E.C.\$240.00 per year, respectively) for chequing accounts, plus fees for overdrafts on chequing accounts, and fees (e.g., a minimum of E.C.\$30.00 per month) for having a line of credit even when it is not used in a particular month.

The fees on deposit-accounts have more than doubled in the past 3 decades, while the interest-income paid to customers has steadily declined (e.g., most recently, from 3% p.a. to 2% p.a. in the OECS and as low as 0.05% p.a. in other CARICOM States). In some instances, regulators have fined banks for widespread unethical fee-related practices, including banks' charging large fees for their self-serving (i.e., revenue-maximising) ways of handling of hundreds of thousands of customers' accounts and associated transactions (e.g., charging high overdraft-fees to clients who had never opted-in for overdraft-services). All of these facts point to the high and rising costs of traditional cash and cheques, pointing to the increasing advantages of electronic payments, card-payments, and online payments.

**Drafts.** As two-party paper, these instruments have higher respectability than personal or commercial cheques (three-party paper). Versions such as banker's drafts and so-called "cashier's cheques" (e.g., issued by a credit-union to a third party on behalf of a customer of that credit-union) (a) represent the good faith of financial institutions, (b) have the same certainty as cash, and (c) are more secure than personal cheques. However, even financial institutions' drafts are no longer convenient as even local drafts are being held for several work-days in a number of Caribbean jurisdictions, notwithstanding the small number of issuing financial institutions and despite the ease of confirming any draft immediately and via multiple person-to-person channels directly between the issuing financial institution and the receiving/encashing financial institution.

- (a) **costs.** In Montserrat, the cost of a draft is EC\$15.00, which is multiples of the cost of a local cheque, though it is much more favourable than the EC\$60.00 to EC\$115.00 charged by local banks for foreign-currency drafts.

**Debit-cards.** These electronic instruments allow customers to access their bank-accounts with the ease of instant cash-withdrawals without having to physically visit an automatic teller machine (ATM) or a bank-branch. They also offer greater protection to users than cash or cheques, while offering the vendor or recipient immediate certainty as to the availability of funds for a given purchase or transaction.

- (a) **costs.** There is no annual fee for a debit-card service. Some institutions have a small per-transaction fee for point-of-sale activities. This is basically a very convenient extension of the ATM card, allowing customers to buy items at diverse



merchants and shopping locations, with the same convenience of credit-cards. Debit-cards are available for both local payments and for international payments, and provide interest-free access to the consumer's bank-account to the extent of its available balance.

**Credit-cards.** The technology of card-payments has evolved through several generations since American Express revolutionised payment-methods more than 50 years ago. Whilst American Express, Visa and MasterCard are the three globally dominant network providers, many other credit card systems and brands exist, including (a) store-cards, Discover, (b) co-branded cards (e.g., by a credit-union, which cannot issue credit cards directly), and (c) corporate cards.



Many additional features and advantages have been added over the past two decades, including (1) discounts with merchants, (2) reward-points, (3) airline miles, (4) cash-refunds up to 5% (Kline, 2017), (5) 24-hour emergency lines, (6) heightened anti-fraud surveillance, (7) automated international currency-exchanges, (8) travel-insurance, (9) life-insurance, (10) emergency services, (11) rental vehicle insurance, (12) concierge services, (13) travel planning and travel assistance services, (14) purchase-protection (e.g., FirstCaribbean International Bank launched this extra benefit for its customers in the Caribbean in the year 2016) and (15) recourse to challenge and to reverse

transactions up to 60 to 90 days afterward (e.g., in cases of fraud, and in cases of vendors that do not deliver the contracted service/goods) (Andriotis, 2017).

**Smart cards deter fraud.** Within the past 2 years, North American banks have followed the leadership of European financial institutions in providing smart credit cards with dual swipe and sign, as well as authentication for each point of sale) (Biersdorfer, 2017). This latter development has almost eliminated card fraud, not least of all vulnerability of the historically and-sign technology to near-no longer possible, owing to transactions with the newer smart cards, and owing to the requirement of a personal identification number for each transaction (as opposed to only a signature, which can be copied and/or forged, as is also much more difficult to validate by vendors overseas or at a long distance from the issuing bank) (Hawthorne, 2017; Herrera, 2017). The technologies have evolved beyond traditional plastic cards to wearable medallions (Jolly, 2017).



**(a) costs.** The annual fees for credit-card accounts range from \$0 in some markets to as much as US\$150 for Platinum Visa accounts (e.g. Republic Bank, FirstCaribbean International Bank); however, competition has arisen to lower even the highest fees within the region (e.g., Globe Finance Inc. offers Classic, Gold, and Platinum Visa accounts at annual fees ranging from US\$12.50 to US\$100, respectively) (GFI, 2016) (<http://www.globefinanceinc.com/credit-cards>). Users who choose to defer payments of their transactions have the convenience of paying as little as 3% of their monthly balance. Associated interest-rates are now as low as 12% p.a. within the region (GFI, 2016). However, some banks charge punitive rates and fees for cash-advances and for specific types of transactions (Collinder, 2017) [39].

**(b) benefits.** Optimally used, however, credit-cards offer unlimited transactions for this fixed fee; all transactional expenses can be avoided once the statement-balance is paid each month on or before the specified date of payment. By extension, this means that one of the unique advantages of credit-cards is interest-free credit up for up to 7 weeks (from the date of the transaction to the subsequent date of the statement on which it first appears to the payment-due date on that statement). Thus, the effective cost per credit-card transaction to the user is much less than that of cheques or drafts, for instance --- ultimately, it can reduce to zero cost, or, including rebates and other benefits, negative (i.e., net benefits).

**E-wallets.** These are the electronic equivalents of cash for transactions and offer even more safety and security than normal debit-cards and credit-cards because they have additional layers of encryption and password-protection between the user and the vendor e.g., for purchases either online or in person. Paypal, for instance, allows the user to connect multiple credit-cards to one account and thereupon to select which one would be used for any particular transaction; however, the credit-cards are never used directly with the vendor (in the case of a regular purchase) or with the donee (in the case of a gift). Therefore, anonymity and security of underlying payment-instruments is highly assured. Such mechanisms have gone far towards advancing electronic commerce, including such scenarios as (1) a customer's doing a transaction with a vendor for the first time, (2) a customer's making an online purchase via an unfamiliar website, and (3) international transactions. The additional recourses and protections provided by the issuers of the underlying credit-cards themselves strengthen the environment of trust and of safety for consumers.

**Cash-cards.** These instruments combine the immediacy of cash with the conveniences of electronic cards. Similar to debit-cards and credit-cards, they have revolving utility, which is not possible with cheques or drafts, which remain costly and useful for only one transaction per instrument (generally). A distinct advantage is that no bank-account is required and this feature enables many under-banked and un-banked citizens to become participants in the official financial

system. This has enabled many vulnerable and low-income citizens to become efficiently and safely served, including disbursement of welfare-benefits at least cost to Governments (Kelley, 2014).

- (a) **costs.** All of the usual issues of banks' charges and fees are minimised with one simple fee calculated as a small percentage of the cash loaded onto the card. This is usually no more than 1.5%, which is much less than the typical fees incurred (1) for international remittances (which cost low-income workers exorbitant effective rates of fees up to 20% of transaction-amounts) (Peterson, 2016), (2) for drafts (which can cost up to US\$5.00 regardless of how small the amount is), (3) for postal orders, and (4) for credit-cards (e.g., annual fees charged to customers and transactional fees up to 7% charged to the receiving merchants).
- (b) **local notes.** Discussions with survey participants revealed that, even though it provides all of the above-mentioned methods of payment in other markets, including elsewhere in the Caribbean Community, Royal Bank of Canada, in Montserrat, does not provide cash-cards to any of its local customers.

## Systems of Payment

**Mobile payment-systems.** In many developing countries, mobiles phones and portable digital devices have become ubiquitous (National Bank of Dominica, 2017). This phenomenon, along with (a) wireless telephony, (b) both wired and wireless Internet-services, (c) remote towers, and (d) satellite-arrays, (which obviate the high-cost installation of traditional infrastructure,) has enabled many financial services to become available to the unbanked, the under-banked, and the low-income strata of the citizenry. In several African countries, for instance, the world-renowned Mpesa and similar electronic-payments networks offer hundreds of millions of hitherto financially unserved consumers immediate, reliable, secure, and robust channels for (1) micro-savings, (2) micro-payments, (3) person-to-person transactions, (4) international remittances, (5) bill-payments, and (6) regular daily purchases, including micro-enterprises and roadside vendors, who are thus likewise empowered both financially and economically (Mpesa, n.d.)<sup>2</sup>

Similar mobile-payments services exist worldwide, abetted by the ever greater presence of, and applications for, billions of mobile phones and Internet-connected devices. Every transaction is protected by a personal identification-number and all accounts are securely housed by remote server-systems, which protect consumers in the event that their access-devices are stolen, lost, or damaged (<http://www.vodafone.com/content/index/what/m-pesa/m-pesa-faqs.html>). In many countries, including Montserrat, the high penetration-rates of mobile telephony, of wireless devices, and of Internet-connectivity facilitate the rapid and widespread adoption of mobile and

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<sup>2</sup> <http://www.vodafone.com/content/index/what/m-pesa.html#>.

online payments whereby transaction-volumes would soon equal a significant percentage of the nation's Gross Domestic Product (Economist, 2013).

A particularly important benefit is not only the reduction/elimination of traditional financial-system transactional costs, but the ease of making credit and loan-repayments available at much lower interest-rates, thus adding significantly to financial inclusion, micro-enterprise development, and economic development (Economist, 2013). Especially in rural communities and among low-income populations, electronic payments such as these eliminate the cost and the time of having to travel to distant bank-branches, vendors, stores, and/or relatives in order to deliver purchase-payments, loan-payments, or monetary gifts in person. By eliminating a large part of the traditional opportunity-costs of the conventional financial sector, mobile payments and wireless remittances boost individual efficiency, corporate effectiveness, and national productivity, increasing output while reducing inputs and lowering costs, risks, and expenses. These and other benefits would contribute to the GOM's efficiency, effectiveness, and the value for money to the public, and play an important role in the redevelopment of Montserrat.

For the persons in Montserrat who do not yet have bank-accounts and/or credit-cards, households that adopt mobile payments would save the hours of time normally needed to travel to and from financial institutions and to wait in queues for routine transactions. They could also avoid the relatively high incidence of risks, of errors, and of crimes affecting in-person and cash-based transactions, and are able to spend the extra saved time productively in their jobs and/or micro-enterprises (Economist, 2013). Furthermore, the very existence of e-payments and m-payments has enabled a range of new businesses to emerge and to flourish, owing to lower costs, bigger client-scope, and easier client-access, including communities that were previously inaccessible, and goods or services that were hitherto unprofitable (or even unfeasible) to deliver. By extension, the GOM would achieve lower cost per payment, greater tax-compliance, and wider scope for delivery of public goods and services.

**Electronic banking.** Globally, financial institutions have deployed a variety of electronic systems both within their back-office operations and in their customer-facing touch-points, branches, and online channels. For instance, (a) cheques are scanned for the Automated Clearing House within the Eastern Caribbean Currency Union, (b) in other countries, customers can deposit cheques to their bank-accounts via scanning and uploading the image of their cheques with their mobile phones to the issuing financial institutions, (c) self-service channels are provided through Automated Teller Machines, mobile phones, and websites, and (d) clients can have secure online accounts with full transactional capabilities (such as bill-payments, deposits, inter-account transfers, third-party transfers, international electronic remittances, account-histories for 6 to 12 months, et cetera). Some institutions have provided all forms and services in electronic formats, as well as fully online loan-request and appointment-setting functionalities.

**E-government.** Governments around the world and within the Caribbean have progressively adopted electronic channels for information, for communication, and for payments of taxes, licences, and fees of all kinds. For instance, at the **Inland Revenue Department** (IRD) in Barbados,

the extremely bureaucratic systems, reminiscent of the 19<sup>th</sup> century, including paper-forms, manual processes, and physical submission of documents, were replaced in the year 2008 with an e-portal offering the following key features: (a) requiring 100% online submission of substantiating third-party documents (e.g., from credit-unions, mortgagees, insurers, banks, and employers), (b) allowing taxpayers (both individuals and businesses) to have secure online accounts with the IRD to see their full tax filing history and all third parties documents relating to their accounts, (c) enabling taxpayers to submit their annual returns online, and (d) facilitating the direct deposit of tax refunds to the bank account or the credit union account of the taxpayer's choice (via a comprehensive drop down menu, within the taxpayer's IRD online account, showing every bank branch and every major credit union).

This approach to public-sector reform (a) encourages compliance, (b) saves time and money for all stakeholders, (c) provides enhanced value and service to citizens, and (d) allows the Government to serve increasing numbers of people without adding to aggregate headcount. Higher compliance-rates increase aggregate revenues; these, coupled with reduced costs per unit of public good or service, lead to expanded capacity to reinvest savings into high-value enhancements of existing public services, while also providing the sustainable basis for investments in newer technologies and services. All of this accelerates economic growth and deepens the integration of enabling technologies that bring the public service closer to the persons that it serves.

Another major achievement of e-government is the tripartite quest of governance: accountability, transparency, and value for money. The Central Bank of Barbados, the Bank of Canada, the Bank of England, and the Eastern Caribbean Central Bank, among others, illustrate a major shift from paper-based reporting with considerable lags between occurrence and recording, and between recording of data and public reporting thereof. With the advent of the World Wide Web, ubiquitous mobile telephony, and free Internet-services in a growing number of public places, abetted by the progressive improvements in private-sector telecommunications and access even to the poorest citizens, e-government has reached a new pinnacle of possibilities and has accumulated two full decades of recent accomplishments. Accordingly, data and reporting in the public interest (serving both transparency of the Government's activities and structures, and accountability of public-sector units to their stakeholders) now happen in real time, and the staff and the Governors of Central Banks (most notably those of the Central Bank of Barbados) utilise WhatsApp, mobile phones, Skype, Youtube, Facebook, websites, and e-mail to disseminate all manner of news, recordings of speeches, recordings of events, new scholarly publications, new research-reports, national statistics, and their own annual reports..