
DEVELOPING NATIONAL FOREST MONITORING FRAMEWORKS FOR SAINT LUCIA



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LIST OF ACRONYMS

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BIOPAMA	Biodiversity and Protected Areas Management Programme (BIOPAMA)
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CIDA	Canadian International Development Agency
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DALA	Damage and Loss Assessment
FAO	Food and Agriculture Organization
FFI	Fauna & Flora International
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction and Recovery
GWC	Global Wildlife Cooperation (GWC)
MEAs	Multi-lateral Environmental Agreement (MEAs),
NFI	National Forest Inventory
NMRF	National Monitoring and Evaluation Framework
REDD+	Reducing Emission form Deforestation and Forest degradation in Developing Countries
SL FMIS	Saint Lucia Forest Management Information Systems
SL FMIS	Saint Lucia Forest Management Information Systems
SLNT	Saint Lucia National Trust
SMART	Spatial Monitoring and Reporting Tool
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nation Framework Convention on Climate Change
UNFF	United Nations Forum on Forests (UNFF)
UNV	University of Vermont

1. INTRODUCTION

Calculation of the contributions that the forestry sector in Saint Lucia makes to the national economy remains largely superficial and unsystematic, both in terms of its direct and indirect values. However, it is well known that forests and forestry makes significant contributions to the socio-economic, cultural, spiritual, and environmental spheres of St. Lucia's national development. Some of this is manifested by way of soil erosion mitigation infrastructure; watershed and water management; adaptation and mitigation to climate change; ecotourism development; recreation and amenity development; biological resource management; and conservation of ecological diversity.

The need for a forest management information system (FMIS) is gaining importance in capturing the broader contribution of forests sector to the national accounts. This will require an effective system to capture forests data on the direct and indirect contribution of forests to the national capital in Saint Lucia. The quantity of volume of timber contained and removed from the government Forest Reserves are well documented through a series of timber inventory and timber removal permits issued for since the establishment the government agency with responsible for forests. These timber data are provided to the Government department responsible for Statistics and reflected in the annual national account report.

The Department of Forestry has made an effort to manage forests information. The Saint Lucia Forest Management Information Systems (SL FMIS) was designed to assist the forest managers of Saint Lucia to manage their forests. A key need of Saint Lucia forest managers has been identified as "the need to be able to access current information on the state of the growing stock in terms of extent and productivity". The SL FMIS was designed to associate with to existing mapping systems, to process information collected in the ongoing inventory, and to use that information to meet the key needed of forest managers.

While this can be said for timber, the same cannot be said for the contribution of the ecosystem services provided by Saint Lucia's forests. There have been a number of initiatives associated with environmental conservation and sustainable development projects that have identified the role of the ecosystem services concept in policies that support the value and protection of natural capital, particularly biodiversity. While some commentators of environmental policy in Saint Lucia have argued that capturing the economic contribution of forest ecosystem services in nebulous; some researchers have provided sufficient data to support the contrary.

For example; Cox et al. (2004) generated data from two adjacent watersheds revealed that the soil losses from an intensively cultivated agricultural watershed were 20-times higher in magnitude than that of a forested watershed both for peak rainfall event and for total duration of analysis. Similarly, evidence from a range of field sites to support the debate on the potential role of markets for watershed services sufficient and improved livelihoods (Cox, 2004). Cox further argued that this subset of markets for environmental services, downstream users of water compensate upstream land managers for activities that influence the quantity and quality of downstream water.

Similarly, capturing the value of erosion control to this sector has been advanced by the University of Vermont (UMV) as important in developing policies that ensure the vitality of the island's economy (Kerchner, et al. 2004). The UMV 2004 estimated the value of erosion control to both the tourism industry and Hill 20 water treatment facility at US \$72 million dollars a year. UMV estimated the indirect value of the ecosystem service provided by forests, should be considered an underestimate of the total value that forest cover contributes to the economy and overall human welfare. Total GDP in 2004 in St. Lucia was US \$753 million.

Some notable policies and actions relating to Forest ecosystem services relating to climate change mitigation and adaptation are showing great promise in Saint Lucia. First, the Forestry Strategy 2015-2025 fully contemplates the implementation of the Reducing Emission from Deforestation and Forest degradation in Developing Countries (REDD+) mechanism as a key element of Saint Lucia development in full compliance with already agreed UNFCCC methodology. Secondly, is the Saint Lucia NDC which clearly indicates that the contribution of the forest sector to national development and mitigation to climate change is among the national key priorities and as such the national REDD+ strategy should be granted high political attention.

Despite all these studies, it is still unclear about the true contribution of sustainable forest management to the gross domestic product in Saint Lucia. There is particularly limited information on, or an incomplete assessment of, the present and future dependency of people on critical forest ecosystem services, and the management approach required to achieve broader sustainable forest management in Saint Lucia.

1.1 Background and Context

Saint Lucia is located within the Windward Islands of the Lesser Antilles in the West Indies. Its closest neighbouring islands are Martinique, 32 km to the north and Saint Vincent, 40 km to the south. Saint Lucia is the second largest island of the Lesser Antilles with an area of 616km², with the maximum length and width of 43km and 21km, respectively. The human population is close to 166,838 residents, giving a mean density of approximately 1,036/km², but much of the island's interior is uninhabited.

The island is volcanic in origin and has a mountainous topography dominated by a central ridge running almost the full length of the island from north to south. Numerous steep offshoot ridges extend to both sides of the coasts. Some valleys are broad and occupied by large banana plantations, including Cul-de-suc, Roseau and Mabouya. These valleys, together with the area around the town of Vieux-Fort in the South, account for most of the flat lands of the country. The central southern part of the country has high mountains (Mount Gimie being the highest at 958m). The coastlines, particularly the east coast, are deeply indented by near-vertical cliffs with some narrow sandy beaches.

The island's tropical marine climate is characterized by relatively uniform high temperatures throughout the year. Tropical storms and hurricanes are infrequent, with

the majority of West Indian tropical cyclones passing to the north of Saint Lucia. The hottest period occurs from May to October, and the coolest, ranges from December to March, giving a mean annual temperature of approximately 26°C at sea level. Annual rainfall varies from 1,524 to 1,778 mm in the north to 2,540 - 3,683 mm in the mountainous interior of the south.

There are approximately 21,692 hectares of natural vegetation in Saint Lucia, of which 9,186 hectares are within the expanded Government Forest Reserve (protected forests). Graveson (2009) describes the different types of forest cover, which range from a very xeric littoral shrub land and mangroves on the coast to a lush rainforest and elfin shrub land in the high peaks. As a Small Island Developing State with a vulnerable open economy, the forest resources of Saint Lucia are particularly important for the variety of products and services, such as timber and non-timber forest products (NTFPs); the conservation of water; habitats and biological diversity functions; which it provides that support the spectrum of social and economic activities of the island.

The first step for establishment of a management and protection framework for forest resources occurred in the early twentieth century, when, the need to safeguard water catchment areas arose. This led to the establishment of the Castries Waterworks Reserve in 1916.

Between 1942 and 1946, Dr. J.S. Beard, Assistant Conservator of Forests in Trinidad and Tobago, carried out a reconnaissance of forests in the Windward and Leeward islands. His report and recommendations ultimately established the legal basis for forest management policies in St. Lucia (and elsewhere in the region). At the time of Beard's inventory, the Government held title to a little over two thousand hectares (5,000 acres) of forested lands in the interior of the island, including the Castries Water Works Reserve (1,047 ha); Warrick Reserve (16ha); Barre de L'Isle Forest Reserve (40 ha); and the Quillesse Forest (925 ha).

Beginning in 1982, under a Canadian International Development Agency (CIDA)-sponsored Forest Management Project, the entire Forest Reserve, which had increased sustainability since Beard's inventory, was surveyed and demarcated. The task was completed in 1987, and most surveys and maps have now been officially gazetted concurrently with the USAID Land Registration and Titling Project register. Table 1.2 shows a total GOSL Forest Reserve area of 7,496 hectares (18,526 acres)

The last forest inventory was conducted in 2009, carried out as part of the National Forest Demarcation and Bio-Physical Resource Inventory Project, funded by the European Community. The overall objective of the project was to survey and demarcate the physical parameters of the public forest reserve and conduct a comprehensive biophysical inventory/assessment and management system of forest resources to produce, inter alia, a forest resource monitoring system, obtained through ground survey, remote sensing, assessment and review of existing data that will serve as the basis for strategic sustainable planning and management of forest resources.

1.2 Purpose

Given this limitation, this study aimed to examine and develop a national monitoring and evaluation framework for conducting inventories of existing forest-related data, mapping data gaps; and addressing these gaps and selecting appropriate national indicators.

1.3 Significance of a National Monitoring and Evaluation Framework (NMAF) For Saint Lucia

Implementing the National Monitoring and Evaluation Framework will be a major step in the pursuit of Sustainable forests management in Saint Lucia (SFM) information; and not only improved SFM information, but also share the information with stakeholders in an efficient and effective manner. The NMEF encourages effective participation of all SFM stakeholders, provision of resources but also by initiating and implementing a robust monitoring strategy, having clearly defined benchmark indicators that will be used to evaluate the SFM contribution to the national account.

The NMEF will provide the roadmap for measuring achievements of the national forests policies and plans and enable Saint Lucia to better achieve international SFM reporting commitment. It will define data collection, management and dissemination processes. It will also document means by which the SFM will be monitored, reviewed and evaluated. The framework will include milestones, progress, outcome and impact indicators. With the full implementation of this NMEF, gaps in the SFM reporting will be identified; and improvement in data collection and management will be addressed.

2 BACKGROUND ANALYTICAL STUDY ON AVAILABILITY OF FOREST DATA

2.1 Institutional Review

The Forestry Department was established in 1946 to manage timber production and maintain the mountainous Central Forest Reserve that protects the island's main water supplies. In the 1980s the Department started expanding its remit to include watershed management, nature conservation, forest visitation, environmental education and community outreach. In response to climatic trends in the Eastern Caribbean (notably, lower and less predictable rainfall and more frequent storms), forestry work, in recent times, mainly focuses on maintaining and restoring tree cover, protecting water courses and controlling erosion across the island, while timber production is now limited to small-scale harvesting for local community needs.

Since the plan of Godlet (1970), the Department has been the subject of at least five strategies and plans at the national/sectorial level and six at the Departmental level. These were implemented to varying extents, but none were fully institutionalised and 'owned' by the Department. Managers reported they had not been sufficiently involved in their development, and that implementation had declined when donor support ended. Despite this, in 2014, the Chief Forest Officer (CFO) requested assistance from Fauna and Flora International (FFI) to develop a new 'management plan' for the Department. The impetus to develop a more strategic approach and better evidence of organisational impact and cost-effectiveness.

The Forest Sector in Saint Lucia has undergone dramatic changes throughout its history. These changes have continued, notwithstanding the many constraints that the sector has experienced in its effort to achieve national and international sustainable development goals. These constraints include but are not limited to population pressure on limited land space; insufficient land area for developing large-scale operations; competing land use change; and vulnerability to natural disasters and climate change.

New developments within the forestry sector and the approval of a new National Forests Strategic Plan for Saint Lucia, also challenge forest officers to actively engage with multiple sectors at the national, regional and international levels. More so, in meeting Saint Lucia's commitment to Multi-lateral Environmental Agreement (MEAs), including, the United Nations Forum on Forests (UNFF), Biodiversity, Climate Change and, Land Degradation. Sustainable Development Goals (SDGs) have also presented some challenges to the Forest Sector and the Forestry Department who are responsible for Sustainable Forest Management (SFM) in Saint Lucia.

A comprehensive institutional review of the department was undertaken during the process of developing the St. Lucia National Forest Strategy and Action Plan, 2015 - 2025, using analytical tools to evaluate the forestry department (see Annex 1).

2.2 Overview of Existing National and International Reporting Requirements

2.2.1 National Reporting

The internal and national reporting structure of the forestry department is designed to capture monthly, quarterly, bi-annual and annual national information on developments and achievements, shortcomings, mitigating factors and constraints of key results areas in each strategic outcome in line with the SLNFSP, 2015-2025. The reports also provide maps, graphs and photographs cited in the matrix as evidence of performance results.

This performance matrix report was a first step towards a performance driven department, focused on results and accountability. It provides a summary of achievements against three key strategic outcomes for the programme area: *Forests and Lands Resources Development*. These strategic outcomes reflect the vision, mission, principles and values stated in the department's Strategic Plan. Moreover, it provides summary results of the strategic interventions and activities planned by the department to manage the financial allocation for the financial year in order to achieve its programme outcomes. The basic structure of the annual report is in table 1:

Table 1: Structure of National Level Forestry Department Annual Report

PERIOD: _____					
Year: _____					
Range/OPERATIONAL AREA: _____					
STRATEGIC OUTCOME:					
INTERVENTION	ACTION (Key Result Areas)	PERFORMANCE TARGETS (Output Indicators)	Achievements (Maj. Developments and Achievements)	Short- comings (Short-fall)	Mitigating Factors and Challenges
OBJECTIVES					

However, many of these plans/reports are mere reproductions of previous templates, containing little, or if any quantifiable information. Consequently, it proves to be problematic for one to track in quantifiable terms, progress made towards any set targets

2.2.2 Projects and Other Reports of Relevance

Damage and Loss Reports: These are reports produced from rapid assessment of impact and damage caused adverse by weather conditions on the forestry sector is typically structured to capture the following:

- Structure and Composition of Forest Reserves
- Private Forest Lands
- Forest Infrastructures
- River Structure
- Recovery Response

The National Forest Demarcation and Bio-Physical Resource Inventory Project (2008–2009) Reports

The overall objective of this project was ‘To survey and demarcate the physical parameters of the public forest reserve and conduct a comprehensive biophysical inventory/assessment and management system of forest resources to produce, *inter alia*, a forest resource monitoring system; through ground survey, remote sensing assessments and review of existing data that served as the basis for strategic sustainable planning and management of forest resources. The main outputs of the project were as follows.

Survey and inventory reports

1. The Mammals of Saint Lucia: Species Accounts, Distribution, Abundance, Ecology, Conservation and Management of Saint Lucia's Native and Introduced Wild Mammals.
2. The Status and Management of Saint Lucia's Forest Reptiles and Amphibians.
3. The Classification of the Vegetation of Saint Lucia.
4. Plant Taxonomy of Saint Lucia: Botanical Descriptions of Important Species, Species Checklist and Herbarium Development.
5. Timber Inventory of Saint Lucia's Forests
6. A Survey of Wildlife Use on Saint Lucia.
7. The Status and Conservation of Saint Lucia's Forest Birds.

Guidelines and manuals

8. The Saint Lucia Permanent Sample Plot System: User Guide.
9. Forest Biometrics Guidelines.
10. The Saint Lucia Forest Management Information System – User Guides.
11. Management of Critical Species on Saint Lucia.
12. Saint Lucia Inventory Training Manual
13. Saint Lucia Forest Inventory Guide
14. Biodiversity Assessment of Saint Lucia's Forests, With Management Recommendations.
15. Forest Management Guidelines

The final two documents are of particular relevance.

Biodiversity Assessment of Saint Lucia's Forests, With Management Recommendations.

This document identifies and maps the main forest ecosystems of Saint Lucia in much more detail than previous assessments and includes detailed assessment of plants, mammals, birds, reptiles, amphibians and some invertebrate groups. It identifies and makes management recommendations for priority areas for conservation and species of conservation concern.

2.2.3 Forest Management Guidelines

This document initially provides an assessment of the existing forest resources; policy objectives legislation in force organisation of the forest administration forest management practices and silvicultural interventions; and the use and marketing of forest products.

It then provides guidelines, orientations and suggestions related to forest management and silviculture, focusing on administrative organisation and on the production potential of the forest '*as this aspect had been somehow neglected over the past few decades in favour of conservation objectives*'.

¹Action plans and management plans

A number of other more specific plans have been generated in recent years in the course of various projects in which the FD is a partner, including:

- Pitons Management Area and Soufriere Region Integrated Development Plan (2008 –): http://slunatrust.org/assets/content/documents/Hyder_Report_PMA.pdf
- GòjBlan (White Breasted Thrasher) Action Plan (2014–2018).
- Saint Lucia Racer Action Plan (draft, 2014–2023).
- Saint Lucia Iguana Action Plan (2014–2018).
- A Biosecurity Plan and Protocols for Saint Lucia's Offshore Islands (2013–).
- Dennery Island Management Plan (2014–2023).
- Praslin Island Management Plan.
- Saint Lucia Fer de Lance Action Plan (under development).
- Lansan Management Plan (draft)
- Iyanola Project (under development): four components are: Enhanced land use planning and regulatory framework (as applied to NE Coast), Enhanced sustainable land management and carbon benefits (dry + low montane forest), Iyanola conservation, and Enhanced capacity for the production of biodiversity friendly goods and services).

¹ Downloadable from :

http://www.bananatrustslu.com/doccentre/National_Forest_Demarcation/Silv-Forest%20management%20report.pdf

http://www.bananatrustslu.com/doccentre/National_Forest_Demarcation/Biodiversity%20Assessment%20-%2027%20November%20-%20extract.pdf

3 INTERNATIONAL REPORTING REQUIREMENTS

3.1.1 Damage and Loss Assessment (DaLA)

This assessment is carried out using the methodology first developed by the Economic Commission for Latin American and the Caribbean (ECLAC), now known as the Damage and Loss Assessment methodology or the DaLA. The assessment complements and expands on the emergency and humanitarian needs identified previously by the Government of Saint Lucia. The result of such an assessment provides a quantitative approximation of the overall damage to the economy and its impact on the affected population.

Baseline data for the conduct of the Marco Socio-Economic and Environmental effects are drawn from among official government data sets including:

- the Population and Housing Census 2001;
- the Survey of Living Conditions 2006;
- other relevant data sets from the Government Central Statistical Offices;
- Ministry of Finance;
- Ministry of Planning
- Eastern Caribbean Central Bank (ECCB).

3.1.2 Global Forest Resources Assessment (FRA)

The Food and Agriculture Organization (FAO) conduct quinquennial (5yrs) monitoring of forest resources in collaboration with its member countries. The information provided by the Global Forest Resources Assessment (FRA) presents a comprehensive view of the world's forests and the various changes this resource is undergoing. Having such a clear global picture, supports the development of sound policies, practises and investments that affects forests and forestry.

Saint Lucia's first FRA report was submitted in 2005, and since then, St. Lucia has unfailingly been able to complete all reports leading up to 2020. Led by a National Correspondent (Focal Point), a team of the GIS/FMIS Unit staff worked in close collaboration with FAO staff, compiling the data that has to be submitted every five years.

Baseline data for conducting FRA is mainly drawn from the national forest inventories reports; various forest management plan achievement reports; GIS data of Forest land use cover maps; aerial imagery and a collection of earth data to produce information that is mainly biophysical in nature.

The following are the key components of the Saint Lucia FRA report:

- Forest extent, characteristics and changes
- Forest growing stock, biomass and carbon
- Forest designation and management

- Forest ownership and management rights
- Forest disturbances
- Forest policy and legislation
- Employment, education and NWFP
- Sustainable Development Goal 15

3.1.3 United Nations Forum on Forests (UNFF) Voluntary Report

Records show that Saint Lucia has completed only one report for the Tenth Session of the United Nations Forum on Forest.

The forest instrument has been grouped into five cross-cutting and eight thematic clusters for easy reference. The report was prepared with the participation of Sustainable Development, Agriculture, Finance, Infrastructure, Health and other NGOs and the private sector.

This report was a streamlined report formatted in three main components:

- I. The forest instrument;
- II. The four Global Objectives on Forests;
- III. The contribution of forests to the achievement of the Millennium Development Goals.

3.1.4 *UNCCC National Communication Reports (NatCom) Saint Lucia's National Inventory Report (NIR) and Biennial Update Reports (Biennial Transparency Reports under Paris Agreement) and National Communications*

The forestry Department in relation to the UNFCCC national communication process report is based on the Green House gas Inventory (GHG) inventory. There has been a four GHGs 2000, 2005, 2010, 2015 and one Saint Lucia's National Inventory Report (NIR) which are mainly focussed on the calculation of greenhouse gas (GHG) emissions.

Saint Lucia's produced it first and only National Inventory Report (NIR) in 2020. The inventory covers the entirety of on island emissions from Saint Lucia and national waters. It contains national greenhouse gas (GHG) emission and removal estimates for the period 2000 – 2018, and the descriptions of the methods used to produce the estimates. The report is prepared in accordance with the 2006 Intergovernmental Panel on Climate Change (IPCC) guidelines and for some sectors, the 2019 Refinement to the 2006 IPCC Guidelines. GHG emissions from all major sectors have been estimated for CO₂, CH₄, N₂O and HFCs. Emissions of NMVOCs, an indirect GHG, have also been estimated in the Industrial Process and Product Use (IPPU) sector. The inventory is managed and maintained by The Department of Sustainable Development on behalf of Saint Lucia. The GHG inventory has a number of specific uses including:

- Reporting to the UNFCCC (a key part of the countries Biennial Update Reports (Biennial Transparency Reports under Paris Agreement) and National Communications)
- Supporting decision makers with metrics, factors, historical data and analysis and monitoring tools for assessing and tracking mitigation actions and modelling future emissions/removal scenarios
- Prioritising certain sectors and activities to mobilise finance for action
- Tracking progress with Saint Lucia's Nationally Determined Contribution (NDC)

3.2 Assessment of Existing or Proposed Forest-related Databases

Saint Lucia has a very poor data and information culture that is well recognized by the Senior Forestry Officers and the sector partners. Twelve (12) forest related database exist at the national level, some with user manual; however, the majority are dormant, underutilized and lack well trained staff and updated infrastructure for them to function.

The reporting procedures and the many projects in which the department is involved generate large amounts of information, but this is not always stored in a central location and is not easily available for use in analysis. The Department maintains a library, but many important documents have proved difficult to locate. There is no central system for storing electronic documents and data.

The Department has a capable GIS team, which is also responsible for the Forest Management Information Systems (FMIS), but there is no established system for ensuring that all field data collected either by the Department or by partners that are spatially referenced and passed onto the GIS/FMIS Unit. Consequently, this information Unit has only partial information and is not being used to its full potential.

Overall there is no clear and consistent flow of quantified and/or due referenced information from activities to the centre and no reverse flow of information analysis and adaptive management recommendations from the centre to the field. The Department is not able to provide consistent detailed evidence of its outputs and impacts, although a lot of that evidence does exist in some form somewhere.

Inter-institutional and cross-sectorial cooperation is increasingly recognized as mechanisms that are both necessary and desirable as a strategy for successfully addressing the majority of the objectives, including information management, and difficult challenges that many Government institutions, non-governmental and private agencies are confronted with. The processes for the collaboration and cooperation are both formal and informal at the institutional level and across sectors.

The Forestry Department has established a framework to facilitate collaboration with a wide range of agencies and sectors in an effort to effectively manage the biophysical resources including the forests, soil and waters of Saint Lucia in accordance with the

soil and water conservation ordinance of Saint Lucia. Some of the mechanisms national committees, taskforces, ad hoc meetings to provide advice, recommendations, brainstorming, and creating synergies for project planning, development and implementation, environmental impact assessments, national communication and accounting.

Other mechanisms include the inter alia:

- National portfolio formulation
- Clearinghouse mechanisms
- GeoNode to facilitate data sharing between Government Agencies
- Public sector strategic programme planning processes
- GHG, NIR and NatCom processes
- FRA processes

3.3 Inventory of Available Forest and Forest-Related Data

3.3.1 Spatial Monitoring and Reporting Tool (SMART)

This is rapidly becoming the global standard for protection monitoring and management of natural resources. SMART is used in more than 650 conservation areas and 59 countries worldwide. The "SMART Approach" uses patrol monitoring data in management cycles that are aimed at step-by-step improvements in patrol quality. When applied properly, this approach can produce substantial improvements in protection. SMART monitoring makes it possible to measure trends in wildlife populations, patrol effort, poaching pressures, and other threats, and providing that protection capacity is sufficient, SMART can help to bring threats to wildlife and their habitat under control and secure the survival of threatened conservation target species.

SMART was introduced to the Saint Lucia Forestry Department, Saint Lucia national trust and the Water Resources management Agency, in April 2018, with support from FFI and Global Wildlife Cooperation (GWC). Capacity building through training and data logging devices were provided to these agencies. Staffs of these agencies were provided training in:

- Understand the advanced use of the SMART tool to support conservation area protection activities.
- Know the philosophy of adaptive patrol management, the role that SMART plays in facilitating this, how to use SMART as a tool to support conservation efforts
- The process of implementing SMART at a site (trainings, meetings, logistics, and technical support)
- How to adapt the tool to the particular needs of the Forestry Department?

Content summary:

1. How to get started with SMART at a new site
2. Design of the data model and conservation area
3. Overview of new and old Cybertracker app and recommended devices

4. Practical use of Cybertracker-equipped smartphones for field data recording, uploading of configured models and downloading of patrol data
5. Troubleshooting and solve basic Cybertracker errors.
6. Advanced query and summary building
7. Advanced reporting
8. Adaptive management using SMART

3.3.2 *Saint Lucia Forest Management and information System (SLFMIS)*

The SL FMIS was designed to assist the forest managers of Saint Lucia to manage their forests. A key need of Saint Lucia forest managers was identified as “the need to be able to access information on the state of the growing stock in terms of extent and productivity”. The SL FMIS was designed to associate with to existing GIS data, to process information collected inventory and sample plots information, and to use that information to meet the key objectives of the department.

The Saint Lucia Forestry Department FMIS is a Microsoft Access application and majority of the information stored in it is entered through inventory data sheets. The main focus of the SL FMIS is the presentation of inventory data to show the nature of the forests of Saint Lucia, and how these forests may be most effectively utilized for the benefit of Saint Lucia.

However, the SLFMIS has not been used since it was built in 2009. The consultant was able to access the data base and realized that some very valuable forest information, for the 2009 forest inventory and other timber related data still exist in the FMIS. The department explained that data produced for the FRA was more readily obtained from the Inventory report. They also explained that a lack of resources to repeat the National Forest Inventory (NFI), which is now 2 years overdue, was the main reason why the database has not been utilized.

A manual was also developed to provide a guide to users. A copy of the Saint Lucia Forest Management Information System User Guide is provided in Annex 2, Appendix 1.

3.3.3 *Saint Lucia’s National Environmental Information System (NEIS)*

The NEIS was launched in 2018, financed by UN Environment on a Global Environment Facility and hosted by the Government of Saint Lucia, under the guidance of the Department of Sustainable to provide a platform for archiving environmental information, with indicators related to broader policy goals and objectives integrated to support reporting and translate data into useful and actionable information. The main focus is to facilitate reporting for the UNFCCC, UNCBD and UNCCD; and to a lesser extent on other multilateral environmental treaty and the public.

3.3.4 Other Forestry Related Data Base Platforms

Other forestry related data base platforms are provided in table below:

Table 2: Other Forestry Related Data Base Platforms

DATA BASE	PLATFORM	REMARKS
Chainsaws registration data base	Microsoft Access application	Platform was lost and data retrieved and placed in Microsoft Excel spreadsheet
Timber removal permit data base	Microsoft Access application	Dormant. Data remain in the duplicate copy in the permit book.
REDD+ Foundation Platform	Web base	Training provided by the Coalition of Rainforest Nations Secretariat. Manual exist to guide the use.
Forest nature trail visitation data base	Microsoft Excel	Dormant
ArcGIS	server software,	Most commonly used platform in the Forestry department. Online geographic information system (GIS) services developed and maintained by Esri.
QGIS	free and open-source cross-platform	Desktop geographic information system (GIS) application that supports viewing, editing, and analysis of geospatial data.
Offshore island biosecurity Monitoring	Microsoft Excel	Maintained by the Saint Lucia national Trust (SLNT)
Wildlife Monitoring	Microsoft Excel	Maintained by the FMIS Unit
Saint Lucia Integrated National GeoNode (SLING).	Data Shearing	Land Use Management digital information system, hosted by Ministry of Physical Planning. Currently down due to technical issues with the server

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ANNEXES

Annex 1

Analytical tools used to evaluation the Forestry Department

During the mission by the author to Saint Lucia in July 2014, an internal workshop was held involving senior and middle management staff to discuss and review the approaches and activities of the Department. During the workshop, four analytical tools were used using tried and tested methods in order to help develop a 'snapshot' of the Department in 2014, which is still relevant in 2021. The results are shown in the following sections.

These analytical tools used to evaluate the Forestry Department included the following:

1. SWOT Analysis
2. PESTLE Analysis
3. Threat Assessment
4. Management Effectiveness Tracking Tool Assessment

SWOT Analysis

A team based analysis of Strengths Weaknesses Opportunities and Threats was conducted to evaluate the current internal factors affecting the FD. The results are shown in Table 1.

Table 3 SWOT analysis for FD

<p>Strengths (Current positive aspects)</p> <ul style="list-style-type: none"> ● Strong Laws ● Strong legislation ● Good credibility of the department ● Good knowledge of the forest area ● Good policy direction ● Good negotiating skills ● Educated and knowledgeable staff members ● Strong human resource/base capacity ● Well-qualified staff at all levels 	<p>Weaknesses (Current limitations)</p> <ul style="list-style-type: none"> ● Lack of a strategy ● Lack of focus ● Lack of innovative ‘out of the box’ thinking ● Limited capacity of some staff ● Fragmented incrementalism (<i>ad hoc</i> planning of forest management activities) ● Lack of succession planning ● Inadequate finance and equipment and tools to carry out the necessary tasks ● Lack of information being passed on from workshops and other meetings to lower staff ● Lack of hands on training for junior staff
<p>Opportunities (Future positive aspects)</p> <ul style="list-style-type: none"> ● Job opportunities. ● New approaches as a result of change to new Ministry (MSDEST) ● Workable examples to follow from other countries ● Potential further economic benefit from forest use through certification ● Funding from donors and organisations ● Established forest ecosystems ● Creation of a sustainable forest sector ● More training ● Better linkages with other sectors ● Succession planning ● Collaboration with international organisations to improve our management skills ● Improved access to information. 	<p>Threats(future threats and risks)</p> <ul style="list-style-type: none"> ● Lack of proper land zoning policy ● Unplanned development ● Loss of efficient but disgruntled personnel (brain drain) ● Loss of continuity and retirement of senior staff ● Bad polices and political decisions ● Illegal cultivation (of narcotics) ● Loss in value of plantations due to neglect and lack of management ● Natural disasters ● Deforestation ● Climate change ● Alien invasive species

PESTLE Analysis

This analysis is designed to assess the external factors (positive and negative) affecting the work of FD in six categories; Political, Economic, Social, Technological, Legal and Environmental. The PESTLE analysis is designed to improve understanding and appreciation of the context within which the department is working. The result is shown in Table 3.

Table 4 PESTLE Analysis. External factors influencing the FD

POLITICAL FACTORS	<ul style="list-style-type: none"> ● Forestry considered positively in national development plan and there is a political wish to see forestry contribute more. ● There is also a lack of understanding on national forestry issues and environmental issues are not given a high priority (Lack of political will) ● Joining the MSDEST provides new opportunities and linkages and an alignment of forestry in the sustainable development sector, rather than the production section. ● Large scale expansion of the PA system unlikely to receive political support due to concerns about the commitments in terms of investments, obligation and limitations on economic development.
ECONOMIC FACTORS	<ul style="list-style-type: none"> ● Inadequate and declining budgets for forestry. ● Demand for forest products (especially wood) is increasing, especially in difficult economic times. People are substituting wood as a material for metal which is now too expensive) and gaining economic benefits from degradation and unsustainable use. ● Insufficient attention paid to the value of the ecological services being maintained by FD. ● Pressure for resort development in inappropriate locations as a ‘better’ economic alternative to protection/sustainable use. ● Global economic crisis affects all aspects of public funding and economic conditions. ● Continuing good opportunities for funding from projects and donors, but concern that there are efforts to find new sources of funds.
SOCIAL FACTORS	<ul style="list-style-type: none"> ● Lack of employment in rural areas leads to increased pressure on natural resources and to illegal activity. ● Changing community perceptions and uses of forests. ● Growth of the environmental movement and NGOs provides good opportunities for collaboration and improved management. ● Decreasing respect for environment among some.
TECHNOLOGICAL FACTORS	<ul style="list-style-type: none"> ● Improved access to forests via roads and tracks makes them more vulnerable to threats, but also easier to visit (for tourists) and monitor (for the FD). ● Technological improvements make exploitation more damaging (e.g. availability of AWD vehicles, chainsaws etc.) ● Access to new tools, effective and efficient technology (e.g. remote sensing, GIS) could make the work of the FD more effective and efficient.

LEGAL FACTORS	<ul style="list-style-type: none"> ● Slow process of approval of new Forest Laws means that existing law is becoming outdated. The Laws need to be amended to adjust to changing patterns ● Existing laws are not being adequately enforced.
ENVIRONMENTAL FACTORS	<ul style="list-style-type: none"> ● Climate change effects require monitoring, mitigation and adaptation. ● Deforestation has long term and major effects on ecosystems and the environment. ● Extreme weather events lead to landslides and requirement for major investment of time and resources in prevention and restoration. ● Garbage disposal is not being adequately managed. ● Water quality and quantity are both under threat and require action. ● Invasive alien species are a very serious threat to Saint Lucia’s biodiversity but controlling them requires much greater, chronic investment’. ● ‘The Forest Reserve is almost entirely comprised of moist forests. Most of the dry forests and other threatened lower-elevation ecosystems are on private lands where it

Threat Assessment

As part of the development of the 2009 Biodiversity Assessment of Saint Lucia's Forests a standard threat assessment was conducted for the forests of Saint Lucia. At the workshop, this assessment was reviewed and updated (see Table 4). The results show a marked contrast between the threats inside the Forest Reserve (which are generally low with some exceptions) and outside, where the threats are widespread and severe.

Table 5 Threat Assessment for Saint Lucia's Forests

Each threat is allocated a score to indicate its relative importance as follows:		
0 = Not a threat		
1 = Minor threat requiring monitoring, but no immediate action.		
2 = Significant threat requiring action for reduction or mitigation.		
3 = Major threat requiring immediate action as a priority		
Threats rated as 2 or 3 are highlighted.		
CATEGORY Subcategory	Inside Forest Reserve	Outside Forest Reserve
THREAT CATEGORY 1. RESIDENTIAL AND COMMERCIAL DEVELOPMENT (CONSTRUCTION)		
1a. Housing and Residential Areas.	0	3
1b. Commercial or Industrial Areas	0	2
1c. Tourism and Recreation Areas.	1	3
THREAT CATEGORY 2. AGRICULTURE AND AQUACULTURE		
2.1 Annual & perennial non timber crops.(Farm crops, orchards etc.)	2	3
2.1(a) illegal drug cultivation	3	3
2.2 Wood and pulp plantations.	1	0
2.3 Livestock farming, grazing etc.	1	3
2.4 Aquaculture.	0	0
THREAT CATEGORY 3 ENERGY AND MINING		
3.1 Oil and Gas.	0	1
3.2 Mining and Extraction	1	2
3.3 Renewable energy	0	1
THREAT CATEGORY 4 TRANSPORTATION AND SERVICE CORRIDORS		
4.1 Road and Railroads	1	3
4.2 Utility and service lines.	1	1
4.3 Shipping Lanes and canals.	0	0
4.4 Flight paths	2	1
THREAT CATEGORY 5. BIOLOGICAL RESOURCE AND DAMAGE		
5.1 Hunting and Poaching	2	2
5.2 Gathering Plants and other products	2	2
5.3. Logging and wood harvesting	1	3
5.4. Fishing and aquatic resource harvesting.	2	2
THREAT CATEGORY 6. HUMAN INTRUSION AND DISTURBANCE		
6.1 Recreational activities and tourism	1	2
6.2 War, unrest and military exercises	0	0
6.3 Research, education and other work related activities	1	1
6.4 Activities of protected area managers (e.g. construction, vehicle use, research work etc.)	2	2
6.5 Deliberate vandalism, destructive activities or threats to staff and visitors	2	2
THREAT CATEGORY 7. NATURAL SYSTEMS MODIFICATION		
7.1 Fires and fire suppression	1	3
7.2 Dams, hydrological management and water management	1	3

7.3a Increased fragmentation	1	2
7.3b Isolation from other natural habitats	1	3
7.3c Other 'edge effects' on natural values	1	3
7.3d Loss of keystone species (e.g. top predators, pollinators etc)	1	2
THREAT CATEGORY 8. INVASIVE AND OTHER PROBLEMATIC SPECIES & GENES		
8.1 Alien invasive animals.	3	3
8.2 Alien invasive plants	3	3
8.3 Pathogens	0	0
8.4 Introduced genetic material	0	0
8.5 Problem native species	1	1
8.6. Species hybridization	3	3
THREAT CATEGORY 9. POLLUTION		
9.1. Household sewage/wastewater	0	3
9.1a. Sewage and waste water from PA and recreation facilities.	2	3
9.2. Industrial, mining and military effluents and discharges	0	1
9.3. Agricultural and forestry effluents	1	3
9.4. Garbage and solid waste	2	3
9.5 Airborne Pollution	0	0
THREAT CATEGORY 10. GEOLOGICAL EVENTS		
10.1. Volcanoes	1	1
10.2. Earthquakes /tsunamis	0	0
10.3. Landslides and avalanches	3	3
10.4. Erosion and siltation/deposition (e.g. shoreline or riverbed changes)	2	3
THREAT CATEGORY 11. CLIMATE CHANGE AND EXTREME WEATHER		
10.1. Habitat shifting and alteration	3	3
10.2. Droughts	2	3
10.3. Temperature extremes	1	1
10.4. Storms & flooding	3	3
THREAT CATEGORY 12. SPECIFIC SOCIAL AND CULTURAL THREATS		
12.1. Loss of cultural links, traditional knowledge and management practices.	2	2
12.2 Deterioration or destruction of important natural sites of cultural value	1	2
12.3 Deterioration or destruction of important man-made sites of cultural value	?	?

Management Effectiveness Tracking Tool Assessment

At the workshop on the participants conducted a WWF World bank Management Effectiveness Assessment (METT) for the management of the Forest Reserve. METT is the world's most widely used method of rapidly assessing the effectiveness of protected area (PA) management using a standard set of criteria and scoring system. The results are shown in Table 5. The overall effect this score is 55%, which while more or less adequate, falls some way short of what could and should be expected. A good score would be around 65 to 70%. The assessment shows that the weakest management factors are as follows:

- #5. PA design: Is the PA the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?
- #6. PA boundary demarcation is the boundary known and demarcated?
- #7. Management plan. Is there a management plan and is it being implemented?
- #10. Protection systems. Are systems in place to control access/resource use in the PA?
- #11. Research. Is there a programme of management-orientated survey and research work?
- #15. Current budget. Is the current budget sufficient?
- #18. Equipment. Is equipment sufficient for management needs?
- #20. Education and awareness. Is there a planned education programme linked to the objectives and needs?
- #24. Local communities. Do local communities resident or near the PA have input to management decisions?
- #26. Monitoring and evaluation. Are management activities monitored against performance?
- #29. Fees. If fees (i.e. entry fees or fines) are applied, do they help PA management?

Table 6 Management effectiveness tracking tool assessment of the Forest Reserve

Issue	Criteria	Score	
1. Legal status Does the PA have legal status (or in the case of private reserves is covered by a covenant or similar)? <i>Context</i>	The PA is not gazetted/covenanted	0	3
	There is agreement that the PA should be gazetted/covenanted but the process has not yet begun	1	
	The PA is in the process of being gazetted/covenanted but the process is still incomplete (includes sites designated under international conventions, such as Ramsar, or local/traditional law such as community conserved areas, which do not yet have national legal status or covenant)	2	
	The PA has been formally gazetted/covenanted	3	
2. PA regulations Are appropriate regulations in place to control land use and activities (e.g. hunting)?	There are no regulations for controlling land use and activities in the PA	0	3
	Some regulations for controlling land use and activities in the PA exist but these are major weaknesses	1	
	Regulations for controlling land use and activities in the PA exist but there are some weaknesses or gaps	2	

<i>Planning</i>	Regulations for controlling inappropriate land use and activities in the PA exist and provide an excellent basis for management	3	
3. Law enforcement Can staff (i.e. those with responsibility for managing the site) enforce PA rules well enough? <i>Input</i>	The staff have no effective capacity/resources to enforce PA legislation and regulations	0	2
	There are major deficiencies in staff capacity/resources to enforce PA legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)	1	
	The staff have acceptable capacity/resources to enforce PA legislation and regulations but some deficiencies remain	2	
	The staff have excellent capacity/resources to enforce PA legislation and regulations	3	
4. PA objectives Is management undertaken according to agreed objectives? <i>Planning</i>	No firm objectives have been agreed for the PA	0	2
	The PA has agreed objectives, but is not managed according to these objectives	1	
	The PA has agreed objectives, but is only partially managed according to these objectives	2	
	The PA has agreed objectives and is managed to meet these objectives	3	
5. PA design Is the PA the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern? <i>Planning</i>	Inadequacies in PA design mean achieving the major objectives of the PA is very difficult	0	1
	Inadequacies in PA design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)	1	
	PA design is not significantly constraining achievement of objectives, but could be improved (respect to larger scale ecological processes)	2	
	PA design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns etc.	3	
6. PA boundary demarcation Is the boundary known and demarcated? <i>Process</i>	The boundary of the PA is not known by the management authority or local residents/neighbouring land users	0	1
	The boundary of the PA is known by the management authority but is not known by local residents/neighbouring land users	1	
	The boundary of the PA is known by both the management authority and local residents/neighbouring land users but is not appropriately demarcated	2	
	The boundary of the PA is known by the management authority and local residents/neighbouring land users and is appropriately demarcated	3	
7. Management plan Is there a management plan and is it being implemented? <i>Planning</i>	There is no management plan for the PA	0	0
	A management plan is being prepared or has been prepared but is not being implemented	1	
	A management plan exists but it is only being partially implemented because of funding constraints or other problems	2	

	A management plan exists and is being implemented	3	
<i>Additional points: Planning</i>			
7a. Planning process	The planning process allows adequate opportunity for key stakeholders to influence the management plan	+1	0
7b. Planning process	There is an established schedule and process for periodic review and updating of the management plan	+1	0
7c. Planning process	The results of monitoring, research and evaluation are routinely incorporated into planning	+1	0
8. Regular work plan	No regular work plan exists	0	2
Is there a regular work plan and is it being implemented	A regular work plan exists but few of the activities are implemented	1	
	A regular work plan exists and many activities are implemented	2	
<i>Planning/Outputs</i>	A regular work plan exists and all activities are implemented	3	
9. Resource inventory	There is little or no information available on the critical habitats, species and cultural values of the PA	0	2
Do you have enough information to manage the area? <i>Input</i>	Information on the critical habitats, species, ecological processes and cultural values of the PA is not sufficient to support planning and decision making	1	
	Information on the critical habitats, species, ecological processes and cultural values of the PA is sufficient for most key areas of planning and decision making	2	
	Information on the critical habitats, species, ecological processes and cultural values of the PA is sufficient to support all areas of planning and decision making	3	
10. Protection systems	Protection systems (patrols, permits etc) do not exist or are not effective in controlling access/resource use	0	1
Are systems in place to control access/resource use in the PA? <i>Process/Outcome</i>	Protection systems are only partially effective in controlling access/resource use	1	
	Protection systems are moderately effective in controlling access/resource use	2	
	Protection systems are largely or wholly effective in controlling access/resource use	3	
11. Research	There is no survey or research work taking place in the PA	0	1
Is there a programme of management-orientated survey and research work? <i>Process</i>	There is a small amount of survey and research work but it is not directed towards the needs of PA management	1	
	There is considerable survey and research work but it is not directed towards the needs of PA management	2	
	There is a comprehensive, integrated programme of survey and research work, which is relevant to management needs	3	
	Active resource management is not being undertaken	0	2

12. Resource management Is active resource management being undertaken? <i>Process</i>	Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented	1	
	Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed	2	
	Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented	3	
13. Staff numbers Are there enough people employed to manage the PA? <i>Inputs</i>	There are no staff	0	2
	Staff numbers are inadequate for critical management activities	1	
	Staff numbers are below optimum level for critical management activities	2	
	Staff numbers are adequate for the management needs of the PA	3	
14. Staff training Are staff adequately trained to fulfil management objectives? <i>Inputs/Process</i>	Staff lack the skills needed for PA management	0	2
	Staff training and skills are low relative to the needs of the PA	1	
	Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management	2	
	Staff training and skills are aligned with the management needs of the PA	3	
15. Current budget Is the current budget sufficient? <i>Inputs</i>	There is no budget for management of the PA	0	1
	The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage	1	
	The available budget is acceptable but could be further improved to fully achieve effective management	2	
	The available budget is sufficient and meets the full management needs of the PA	3	
16. Security of budget Is the budget secure? <i>Inputs</i>	There is no secure budget for the PA and management is wholly reliant on outside or highly variable funding	0	2
	There is very little secure budget and the PA could not function adequately without outside funding	1	
	There is a reasonably secure core budget for regular operation of the PA but many innovations and initiatives are reliant on outside funding	2	
	There is a secure budget for the PA and its management needs	3	
17. Management of budget Is the budget managed to meet critical management needs? <i>Process</i>	Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)	0	2
	Budget management is poor and constrains effectiveness	1	
	Budget management is adequate but could be improved	2	
	Budget management is excellent and meets management needs	3	
	There are little or no equipment and facilities for management needs	0	1

18. Equipment Is equipment sufficient for management needs? <i>Input</i>	There are some equipment and facilities but these are inadequate for most management needs	1	
	There are equipment and facilities, but still some gaps that constrain management	2	
	There are adequate equipment and facilities	3	
19. Maintenance of equipment Is equipment adequately maintained? <i>Process</i>	There is little or no maintenance of equipment and facilities	0	2
	There is some <i>ad hoc</i> maintenance of equipment and facilities	1	
	There is basic maintenance of equipment and facilities	2	
	Equipment and facilities are well maintained	3	
20. Education and awareness Is there a planned education programme linked to the objectives and needs? <i>Process</i>	There is no education and awareness programme	0	1
	There is a limited and <i>ad hoc</i> education and awareness programme	1	
	There is an education and awareness programme but it only partly meets needs and could be improved	2	
	There is an appropriate and fully implemented education and awareness programme	3	
21. Planning for land and water use Does land and water use planning recognise the PA and aid the achievement of objectives? <i>Planning</i>	Adjacent land and water use planning does not take into account the needs of the PA and activities/policies are detrimental to the survival of the area	0	2
	Adjacent land and water use planning does not take into account the long term needs of the PA, but activities are not detrimental to the area	1	
	Adjacent land and water use planning partially takes into account the long term needs of the PA	2	
	Adjacent land and water use planning fully takes into account the long term needs of the PA	3	
Additional points: Land and water planning			
21a: Land and water planning for habitat conservation	Planning and management in the catchment or landscape containing the PA incorporates provision for adequate environmental conditions (e.g. volume, quality and timing of water flow, air pollution levels etc) to sustain relevant habitats.	+1	1
21b: Land and water planning for connectivity	Management of corridors linking the PA provides for wildlife passage to key habitats outside the PA (e.g. to allow migratory fish to travel between freshwater spawning sites and the sea, or to allow animal migration).	+1	0
21c: Land and water planning for ecosystem services & species conservation	Planning addresses ecosystem-specific needs and/or the needs of particular species of concern at an ecosystem scale (e.g. volume, quality and timing of freshwater flow to sustain particular species, fire management to maintain savannah habitats etc.)"	+1	1
22. State and commercial neighbours	There is no contact between managers and neighbouring official or corporate land and water users	0	2
	There is contact between managers and neighbouring official or corporate land and water users but little or no cooperation	1	

Is there co-operation with adjacent land and water users? <i>Process</i>	There is contact between managers and neighbouring official or corporate land and water users, but only some co-operation	2	
	There is regular contact between managers and neighbouring official or corporate land and water users, and substantial co-operation on management	3	
23. Indigenous people Do indigenous and traditional peoples resident or regularly using the PA have input to management decisions? <i>Process</i>	Indigenous and traditional peoples have no input into decisions relating to the management of the PA	0	n/a
	Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management	1	
	Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved	2	
	Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management	3	
24. Local communities Do local communities resident or near the PA have input to management decisions? <i>Process</i>	Local communities have no input into decisions relating to the management of the PA	0	1
	Local communities have some input into discussions relating to management but no direct role in management	1	
	Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved	2	
	Local communities directly participate in all relevant decisions relating to management, e.g. co-management	3	
<i>Additional points Local communities/indigenous people</i>			
24 a. Impact on communities	There is open communication and trust between local and/or indigenous people, stakeholders and PA managers	+1	0
24b. Impact on communities	Programmes to enhance community welfare, while conserving PA resources, are being implemented	+1	1
24c. Impact on communities	Local and/or indigenous people actively support the PA	+1	0
25. Economic benefit Is the PA providing economic benefits to local communities <i>Outcomes</i>	The PA does not deliver any economic benefits to local communities	0	2
	Potential economic benefits are recognised and plans to realise these are being developed	1	
	There is some flow of economic benefits to local communities	2	
	There is a major flow of economic benefits to local communities from activities associated with the PA	3	
26. Monitoring and evaluation Are management activities monitored against performance? <i>Planning/Process</i>	There is no monitoring and evaluation in the PA	0	1
	There is some <i>ad hoc</i> monitoring and evaluation, but no overall strategy and/or no regular collection of results	1	
	There is an agreed and implemented monitoring and evaluation system but results do not feed back into management	2	
	A good monitoring and evaluation system exists, is well implemented and used in adaptive management	3	

27. Visitor facilities	There are no visitor facilities and services despite an identified need	0	2
Are visitor facilities adequate?	Visitor facilities and services are inappropriate for current levels of visitation	1	
<i>Outputs</i>	Visitor facilities and services are adequate for current levels of visitation but could be improved	2	
	Visitor facilities and services are excellent for current levels of visitation	3	
28. Commercial tourism operators	There is little or no contact between managers and tourism operators using the PA	0	2
Do commercial tour operators contribute to PA management?	There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters	1	
<i>Process</i>	There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain PA values	2	
	There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain PA values	3	
29. Fees	Although fees are theoretically applied, they are not collected	0	1
If fees (i.e. entry fees or fines) are applied, do they help PA management?	Fees are collected, but make no contribution to the PA or its environs	1	
	Fees are collected, and make some contribution to the PA and its environs	2	
<i>Inputs/Process</i>	Fees are collected and make a substantial contribution to the PA and its environs	3	
30. Condition of values	Many important biodiversity, ecological or cultural values are being severely degraded	0	2
What is the condition of the important values of the PA as compared to when it was first designated?	Some biodiversity, ecological or cultural values are being severely degraded	1	
<i>Outcomes</i>	Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted	2	
	Biodiversity, ecological and cultural values are predominantly intact	3	
<i>Additional Points: Condition of values</i>			
30a: Condition of values	The assessment of the condition of values is based on research and/or monitoring	+1	1
30b: Condition of values	Specific management programmes are being implemented to address threats to biodiversity, ecological and cultural values	+1	1
30c: Condition of values	Activities to maintain key biodiversity, ecological and cultural values are a routine part of PA management	+1	1
TOTAL SCORE	54/99	55%	

Conclusions and issues

This preliminary rapid institutional assessment of the Forestry Department identifies a number of important issues, which can be summarised as follows:

- The Department has a commendable tradition and record of forest protection and natural resource management in Saint Lucia. This is well recognised and respected across the country.
- The Department is undergoing a challenging period of change. Whereas its original purpose and prevailing strategic approach revolves around forest protection and production, its actual role in 2014 is more complex, also involving conservation of rare and endangered species, sustainable rural development, disaster prevention and mitigation, provision of tourism and recreation opportunities and maintenance of essential ecosystem services, vital for the continued social and economic well-being of the country.
- While the basic legal functions and mandates of the Department are quite well defined in the legislation, this legislation is becoming increasingly outdated with respect to the evolving role of the Department.
- The threats to the natural resources that are the responsibility of the Department are increasing in extent and severity, particularly outside the Forest Reserve.
- The Department has adequate personnel and a limited, but fairly secure budget for the recurrent costs of fulfilling its obligations, but operational budgets are low and human and material resources are not being effectively and efficiently deployed with respect to the main duties and obligations of the Department.
- The Department has been subject to numerous strategies and plans the last 20 years, and while elements of all of these have been adopted, none have really been fully assimilated into the operations of the Department since 2002.
- The Department has been effective in developing productive partnerships and securing internationally funded project support for its activities, but in some cases these projects have been driven more by the needs of donors than by the identified priorities of the Department.
- The Department has a generally well-educated staff, but opportunities for higher education and advancement are limited for junior staff and there is a concern that as senior staff retire, there will be a growing “capacity gap”. There is also a problem with low morale and motivation among some staff, as a result of sometimes difficult working conditions, lack of resources and lack of a clear, motivating and shared direction.
- Information management and use of information to inform planning, decision-making and adaptive management is underdeveloped and hampering effective management.
- The transfer of the Department to the MSDEST has presented some challenges and opportunities. The Department does need to make its mark in the new Ministry and establish its role and value, as there is a widespread view that the Department has ‘fallen behind’ in terms of its influence and status. Alignment to the sustainable development agenda should enable the Department to emphasise its value in sustaining vital ecosystem services for sustainable

development, provision of essential natural resources (particular water) and adaptation and mitigation to the impacts of climate change.

- There are internal differences of opinion within the Department about its role and functions and the directions it should be taking.
- The Department needs a new strategic approach that is commonly understood by all its staff, that is supported by its parent ministry and partners, and that reflects its changing role. It might be asked with some justification why yet another strategy is required. However, the new strategy needs to be rather different. It should be concise, simple and clear. It should reflect and address the issues currently faced by the Department and provide commonly understood, well justified and prioritised directions. Above all personnel of the Department should feel ownership of the strategy and should be motivated to invest the extra time and effort required to implement it. This will require dynamic, committed and consistent leadership from the senior management team.